MARYLAND

UNDERGRADUATE CATALOG 1993-94

UNIVERSITY OF MARYLAND AT COLLEGE PARK

MARYLAND

GOALS

An education at the University of Maryland at College Park strives to cultivate intellect by teaching students to extend principles and ideas to new situations and to new groups of people. It aims to provide students with a sense of identity and purpose, a concern for others, a sense of responsibility for the quality of life around them, a continuing eagerness for knowledge and understanding, and a foundation for a lifetime of personal enrichment. It enlivens students to enlarge the common understanding, to develop humane values, to celebrate tolerance and fairness, to contribute to the social conscience, to monitor and assess private and collective assumptions, and to recognize the glory, tragedy, and humor of the human condition. Specifically, undergraduate education at College Park seeks to enable students to develop and expand their use of basic academic and intellectual tools. Students are educated to be able to read with perception and pleasure, write and speak with clarity and verve, handle numbers and computation proficiently, reason mathematically, generate clear questions and find probable arguments, reach substantiated conclusions, and accept ambiguity. Students also study in depth and acquire a substantial competence in a coherent academic discipline. A College Park education helps students to become aware of the variety of ways of knowing, the complexity of being human, and to understand their place in history and in the contemporary world. Students learn to analyze and appreciate artistic creations, to identify and evaluate moral questions, to synthesize and integrate knowledge, and to become intellectually flexible, inventive, and creative.

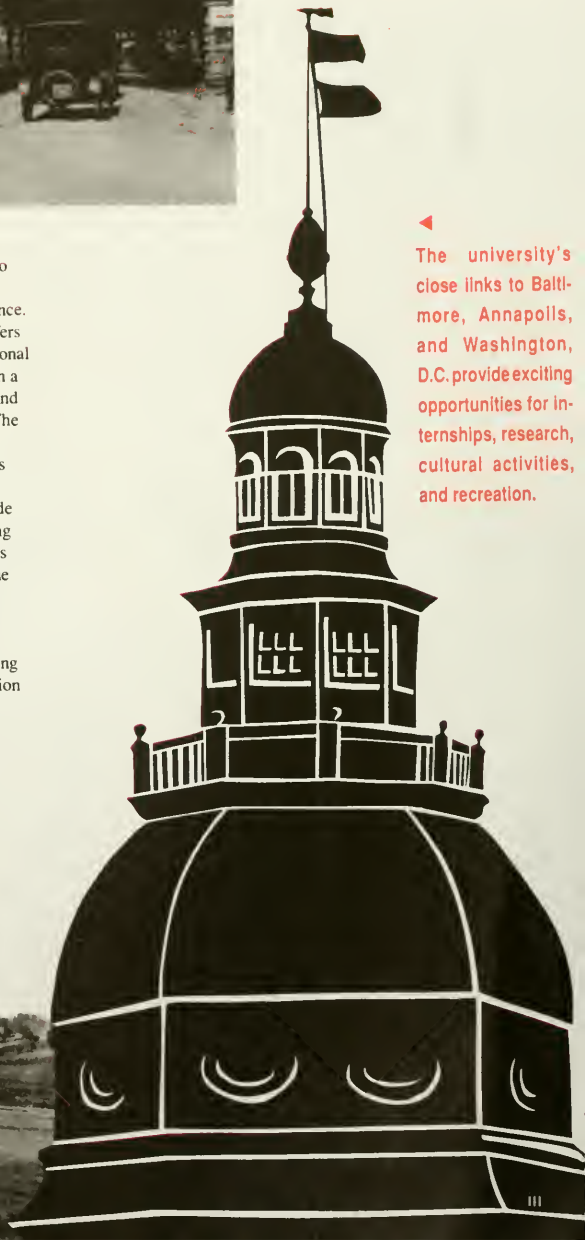
From, Promises to Keep The College Park Plan for Undergraduate Education
Approved by the Campus Senate March, 1988

HISTORY

Just after the American Revolution, the state of Maryland established its first two colleges at Chestertown and Annapolis. By the 1850s, at least thirty little colleges had sprung up over the state, many with state support, but many of them disappearing within a few years. Then, in 1859 a different kind of institution appeared at College Park—the Maryland Agricultural College, the third such college in the world, created mainly for farmers' sons. The college was established by Charles Benedict Calvert, a wealthy planter from nearby Riversdale—now Riverdale—and later a congressman. Calvert built a handsome Gothic dormitory-classroom structure located in a grove of trees near the present Morrill Hall, and he divided the land down to the Baltimore-Washington Turnpike into small plots where each of the 50-or-so students experimented with a different agricultural crop. After the Civil War the institution became a land-grant college, with small appropriations from Washington. The little college began to grow about 1900 when agricultural experiments began to bring prosperity to Maryland, and when the college expanded its offerings into engineering, business, and the liberal arts. In

In 1888, the campus consisted of an administration building, a classroom building, and a laboratory. As the Maryland Agricultural College, it became one of the nation's first land-grant institutions in 1865.

1912 the old Gothic building burned, and the state provided modern structures. Women were admitted to the campus, and graduate work began. In 1920 the college combined with the long-established professional schools of Baltimore and changed its name to the University of Maryland. Growth accelerated after 1935 when the politically astute football coach, H.C. 'Curley' Byrd became president, added scores of new programs, and won national football championships. In the 1950s and 1960s, President Wilson H. Elkins maintained the rapid growth, and College Park became one of the largest campuses in the nation. President Elkins, a Rhodes Scholar, transformed the institution's public image from that of a party school to one of academic integrity. In the 1970s and 1980s, the university's graduate and research programs have especially flourished. In 1988, the General Assembly of Maryland combined six state colleges with the five campuses of the University of Maryland, and specifically charged College Park with the role of leadership. The University of Maryland at College Park recognizes its special responsibility as the flagship and the largest of the eleven institutions within the statewide university system to lead the University of Maryland's quest for excellence. To this end, College Park offers broad coverage in the traditional arts and sciences as well as in a wide range of professional and pre-professional programs. The institution is organized into fourteen colleges and schools encompassing over 100 departments and campus-wide programs of study. A growing number of these departments and programs rank among the best in the nation. Today the University of Maryland at College Park stands, by any measure, as one of the leading institutions of higher education in the world.



The university's close links to Baltimore, Annapolis, and Washington, D.C. provide exciting opportunities for internships, research, cultural activities, and recreation.

RESEARCH

▲ Undergraduate students are encouraged to begin their own explorations through access to state of the art facilities and resources.

Opportunities for conducting research abound at the University of Maryland College Park and in the surrounding area, both for faculty to advance their own expertise and bring their insights back into the classroom, and for students to begin the exploration of their special interests with hands-on experience. On campus, special facilities and a number of organized research bureaus, centers, and institutes promote the acquisition and analysis of new knowledge in the arts, sciences, and applied fields. A sampling of such facilities include a computer vision laboratory, a full-scale low velocity wind tunnel, computer-assisted cartographic laboratories, a psycholinguistics laboratory, a Superconductivity Research Center, the Laboratory for Plasma and Fusion Studies, the Developmental Psychology Laboratory, the Center on Aging, the Systems Research Center, the Engineering Research Center, the Center for Renaissance and Baroque Studies, and the Agricultural Experiment Station. Off campus, University of Maryland at College Park scientists placed a Low Energy Charged Particle experiment on board Voyager 2, which passed Neptune in August, 1989; others are involved in the development of the world's largest array of radio telescopes housed at the Hat Creek Observatory of the University of California at Berkeley. UMCP is leading a

multi-institutional excavation of the ruined city of Caesarea Maritima in Israel, where Pontius Pilate lived while serving as Roman governor of Judea. Aided by the Maryland Sea Grant, College Park zoologists and microbiologists study the fisheries of the Chesapeake Bay. The university's unique location—just 10 miles from downtown Washington, D.C., and approximately 30 miles from both Annapolis and Baltimore—enhances the research of its faculty and students because of its access to some of the finest libraries and research centers in the country. These include the National Institutes of Health, the Smithsonian Institution, the USDA Beltsville National Agricultural Research Center and National Agricultural Library, the Library of Congress, the National Archives, the Folger Shakespeare Library, and many other academic and special libraries. In the Baltimore area, in addition to the university's own libraries at Baltimore County and on the professional campus in Baltimore City, are the Enoch Pratt Free Library and the Maryland Historical Association Library. The state capital at Annapolis is the site of the Maryland Hall of Records.

A major research university attracts top faculty who bring their research interests and insights to the classroom. ▼

ACCREDITATION

The University of Maryland at College Park is accredited by the Middle States Association of Colleges and Secondary Schools and is a member of the Association of American Universities. In addition, individual colleges, schools, and departments are accredited by such groups as the American Assembly of Collegiate Schools of Business, the American Chemical Society, the National Association of Schools of Music, the Accrediting Council on Education in Journalism and Mass Communications, the Committee on Accreditation of the American Library Association, the American Psychological Association, the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (see College of Engineering for a listing of accredited engineering programs), the National Council for Accreditation of Teacher Education, the National Architectural Accrediting Board, the American Dietetic Association, the Planning Accreditation Board of the American Planning Association, the Council on Rehabilitation Education, the Council for Accreditation of Counseling and Related Educational Program, the Institute of Food Technologists, The Association of Marriage and Family Therapists, and the Educational Standards Board of the American Speech-Language Hearing Association.

LIBRARIES

Seven libraries and numerous special collections provide rich material and technical support for teaching and research.

The seven libraries which make up the University of Maryland at College Park library system offer outstanding resources and services. The holdings of the libraries include over 2.1 million volumes, approximately 4.5 million microform units, almost 20,000 current periodical and newspaper subscriptions as well as over 731,000 government documents, 191,000 maps, and extensive holdings of phonorecords, films and filmstrips, slides, prints, and music scores. The libraries also feature a Technical Reports Center collection of some 2 million items—one of the most outstanding collections of its kind in the nation. Hornbake Library is the undergraduate library, providing reference, circulation and reserve services in all subject areas to undergraduate students. A late-night study room is open 24 hours during the fall and spring terms.

Nonprint Media Services, located on the fourth floor of Hornbake, is the central audio-visual department for the UMCP libraries. The collection consists primarily of videocassettes, films, audiocassettes, and the equipment and facilities to use them. The newly renovated and expanded Theodore R. McKeldin Library is the main research library of the UMCP library system. In addition, McKeldin's reference works, periodicals, circulating books, special collections and other materials provide support for research and teaching throughout the university, with special emphasis on the humanities, the social sciences, and the life sciences. The five specialized branch libraries on campus offer extensive resources which provide essential support for study, research, and teaching. These include the Architecture Library, the Art Library, the Engineering and Physical Sciences Library,the Music Library, and the White Memorial (Chemistry) Library. Included among the most outstanding special holdings of the libraries are the International Piano Archives at Maryland, a world-renowned collection of piano performance materials; the National Trust for Historic Preservation Library, located in McKeldin Library; the Maryland Room–a major center for Maryland studies; the Gordon W. Prange Collection of Japanese-language publications, 1945–49; the U.S. Patent Depository Library; the Government Document and Maps Room, featuring U.S. government publications as well as publications of the United Nations, the League of Nations and other international organizations, maps from the U.S. Army Map Service and the U.S. Geological Survey; the East Asia Collection; and the National Public Broadcasting Archives located in Hornbake Library.

Desktop computers are part of a campus-wide network of workstation and microcomputer laboratories.

Effective July 5, 1989, any student, faculty, or staff member with a currently validated identification card at one of the following Maryland colleges and universities is entitled to direct borrowing privileges at any of them: the eleven institutions of the University of Maryland System; Morgan State University; St. Mary's College of Maryland; and the UM Center for Environmental Estuarine Studies. For more information, please contract the library circulation desk at your home institution.

COMPUTER SCIENCE CENTER

The Computer Science Center supports on-campus computing through a full range of quality computing services. It offers many training courses in popular microcomputer and mainframe software packages, as well as consulting and computer user First-Aid. The Center supports advanced workstation and microcomputer laboratories across campus for day and evening self-study and class projects. To support teaching and research, the center offers networked computer resources, including IBM mainframe and UNIX-based computer systems. Qualified researchers at College Park may also access off-campus supercomputers. The Center houses the Program Library, maintains the campus network backbone (UMDNET), operates the Computer Emporium, which sells microcomputers and provides low cost service and computer maintenance to members of the campus community.

UNDERGRADUATE PROGRAMS OF STUDY

COLLEGE OF AGRICULTURE
Agricultural Engineering
Agriculture
Agriculture/Veterinary (combined)
Agricultural and Resource Economics
Agronomy
Animal Sciences
Dietetics
Food Science
Horticulture
Human Nutrition and Foods
Natural Resources Management Program

COLLEGE OF ARTS AND HUMANITIES
American Studies
Art
Art History and Archeology
Classical Languages and Literatures
Dance
East Asian Languages and Literatures
English Language and Literature
French Language and Literature
Germanic Languages and Literatures
History
Jewish Studies
Linguistics
Music
Philosophy
Romance Languages
Russian Area Studies
Russian Languages and Literature
Spanish Languages and Literature
Speech Communication
Theatre

COLLEGE OF BEHAVIORAL AND SOCIAL SCIENCES
Afro-American Studies
Anthropology
Criminal Justice and Criminology
Economics
Geography
Government and Politics
Hearing and Speech Science
Psychology
Sociology

COLLEGE OF BUSINESS AND MANAGEMENT
Accounting
Business/Law
Finance
General Business Administration
Management Science and Statistics
Marketing
Personnel and Labor Relations
Production Management
Transportation

COLLEGE OF COMPUTER, MATHEMATICAL, AND PHYSICAL SCIENCES
Astronomy
Computer Science
Geology
Mathematics
Physical Sciences
Physics

COLLEGE OF EDUCATION
Early Childhood Education
Elementary Education
Secondary Education
- Art
- English
- Language Arts
- Foreign Language
- Mathematics
- Music
- Science
- Social Studies
- Speech and English
- Theatre and English
- Special Education

COLLEGE OF ENGINEERING
Aerospace Engineering
Agricultural Engineering
Chemical Engineering
Civil Engineering
Electrical Engineering
Engineering
Fire Protection Engineering
Materials and Nuclear Engineering
Mechanical Engineering

COLLEGE OF HEALTH AND HUMAN PERFORMANCE
Family Studies
Health Education
Kinesiology
Physical Education

COLLEGE OF JOURNALISM

COLLEGE OF LIFE SCIENCES
Biochemistry
Biological Sciences
Botany
Chemistry
Entomology
Microbiology
Zoology

UNDERGRADUATE STUDIES
Allied Health Professions/Pre-professional Options
- Pre-Dental Hygiene
- Pre-Dentistry§
- Pre-Law§
- Pre-Medical Technology
- Pre-Medicine§
- Pre-Nursing
- Pre-Optometry§
- Pre-Osteopathic Medicine§
- Pre-Pharmacy
- Pre-Physical Therapy
- Pre-Podiatric Medicine§

Individual Studies Program
University Honors Programs
§Advising Available

CAMPUS-WIDE CERTIFICATES
Afro-American Studies
East Asian Studies
Women's Studies

▲ Cultural and ethnic diversity are part of the educational tradition at Maryland.

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** Graduate Programs only. See the current Graduate Catalog.

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1993-94 ACADEMIC CALENDAR

SUMMER SESSION I, 1993
First Day of Classes ..... June 7
Last Day of Classes ..... July 16

SUMMER SESSION II, 1993
First Day of Classes ..... July 19
Last Day of Classes ..... August 27

FALL SEMESTER, 1993
First Day of Classes ..... September 7
Thanksgiving Recess ..... November 25-28
Last Day of Classes ..... December 13
Final Examinations ..... December 15-22
Commencement ..... December 23

SPRING SEMESTER, 1994
First Day of Classes ..... January 18
Spring Recess ..... March 14-20
Last Day of Classes ..... May 9
Final Exams ..... May 11-18
Commencement ..... May 19

GUIDE TO INFORMATION

PUBLICATIONS

Departmental Brochures: Small brochures describing many of the departments and programs at the University of Maryland at College Park are available free. Write to the Office of Undergraduate Admissions, Mitchell Building, University of Maryland, College Park, MD 20742, or contact the department directly.

Graduate Catalog/Graduate Bulletin: For information about obtaining the *Graduate Catalog* or *Graduate Bulletin*, call 301/314-4198, or write to the Graduate Office, Lee Building, University of Maryland, College Park, MD 20742.

Prelude: College Park publishes a free mini-catalog and application packet, Prelude, for prospective undergraduate students. For a copy of this booklet, call 301/314-8385, or write to the Office of Undergraduate Admissions, Mitchell Building, University of Maryland, College Park, MD 20742.

Schedule of Classes: The *Schedule of Classes* lists course offerings and class times and room assignments, registration dates and procedures, deadlines, fees, and general information. The schedule is published four times a year, twice each semester. The first edition is available prior to early registration for the spring and fall semesters. The second edition, published a few weeks before the beginning of each semester, updates course offerings and registration procedures. The schedule is available to all students free of charge and can be picked up at the Mitchell Building, Stamp Student Union, Hornbake Library and McKeldin Library.

Undergraduate Catalog: The *Undergraduate Catalog* is made available to all students admitted to College Park, and is available free to all undergraduates and faculty at College Park with a valid ID from the University Book Center. Copies are available for consultation in libraries and in high schools in Maryland, the District of Columbia, and Virginia. Copies are on sale to the general public for $2.50 to cover postage and handling. Send a check (payable to University Book Center) to the University Book Center, Stamp Student Union, University of Maryland, College Park, MD 20742. Write "Catalog" on the check. Please allow four weeks for delivery.

FREQUENTLY CALLED NUMBERS (Area code: 301)

General Information	**405-1000**
Admissions	**314-8385**
Advising	314-8418
Financial Aid	314-8313
Housing, Off-Campus	314-3645
Housing, On-Campus	314-2100
Orientation	314-8217
Parking	314-PARK
Student Accounts	405-9041
Summer Programs	405-6551

POLICY STATEMENT

DISCLOSURE OF INFORMATION: In accordance with "The Family Educational Rights and Privacy Act of 1974" (P.L. 93-380), popularly referred to as the "Buckley Amendment," disclosure of student information, including financial and academic, is restricted. Release to anyone other than the student requires a written waiver from the student. (For complete University policy on access to and release of student data/ information, see Appendix D.)

The University of Maryland is an equal opportunity institution with respect to both education and employment. The University does not discriminate on the basis of race, color, religion, national origin, sex, age, or handicap in admission or access to, or treatment or employment in, its programs and activities as required by federal (Title VI, Title IX, Section 504) and state laws and regulations. Inquiries regarding compliance with Title VI of the Civil Rights Act of 1964, as amended, Title IX of the 1972 Educational Amendments, Section 504 of the Rehabilitation Act of 1973, or related legal requirements should be directed to:

Director
Office of Human Relations
1107 Hornbake Library
University of Maryland
College Park, MD 20742.
Telephone: 301-405-2838

(Complete texts of the University Human Relations Code and the Campus Policies and Procedures on Sexual Harassment are printed in Appendix A and Appendix B.) Inquiries concerning the application of Section 504 and part 34 of the C.F.R. to the University of Maryland, College Park, Maryland, may be directed to:

Director
Disabled Student Services
0126 Shoemaker Hall
University of Maryland
College Park, MD 20742.
Telephone: 301-314-7682 (voice)
301-314-7683 (TTY)

Disclaimer: The provisions of this publication are not to be regarded as a contract between the student and the University of Maryland. Changes are effected from time to time in the general regulations and in the academic requirements. There are established procedures for making changes, procedures which protect the institution's integrity and the individual student's interest and welfare. A curriculum or graduation requirement, when altered, is not made retroactive unless the alteration is to the student's advantage and can be accommodated within the span of years normally required for graduation. The university cannot give assurance that all students will be able to take all courses required to complete the academic program of their choice within eight semesters. Additionally, because of space limitations in limited enrollment programs, College Park may not be able to offer admission to all qualified students applying to these programs.

When the actions of a student are judged by competent authority, using established procedure, to be detrimental to the interests of the university community, that person may be required to withdraw from the University. (For the complete University of Maryland Code of Student Conduct, see Appendix C.)

Important Information on Fees and Expenses: All Students Who Pre-register Incur a Financial Obligation to the University. IThose students who pre-register and subsequently decide not to attend must notify the Registrations Office, 1130A Mitchell Building (formerly North Administration Building), in writing, prior to the first day of classes. If this office has not received a request for cancellation by 4:30 p.m. of the last day before classes begin, the university will assume the student plans to attend and accepts his or her financial obligation.

After classes begin, students who wish to terminate their registration must follow the withdrawal procedures and are liable for charges applicable at the time of withdrawal.

State of Maryland legislation has established a State Central Collections Unit, and in accordance with state law, the university is required to turn over all delinquent accounts to it for collection and legal follow-up. This is done automatically on a month-to-month basis by computer read-out.

Collection Costs: Collection costs incurred in collecting delinquent accounts will be charged to the student. The minimum collection fee is 17%, plus any attorney and/ or court costs.

Gender Reference: The masculine gender whenever used in this document is intended to include the feminine gender as well.

Smoking Policy: It is hereby established as the policy of the University of Maryland at College Park to achieve a public environment as close to smoke-free as practicably possible. (See Appendix E of this catalog for the complete "Smoking Policy and Guidelines.")

CHAPTER 1

ADMISSION REQUIREMENTS AND APPLICATION PROCEDURES

FRESHMAN ADMISSION

The University of Maryland is a publicly-supported, land grant institution dedicated primarily to the educational needs of Maryland residents. Within its responsibilities as a state institution, the university attracts a cosmopolitan student body and each year offers admission to a number of promising students from other states and jurisdictions. Currently, fifty states, the District of Columbia, two territories, and 100 foreign countries are represented in the undergraduate population. Admission policies are determined by the Board of Regents.

The University of Maryland at College Park maintains a competitive admission policy, with priority given to those students with the most outstanding academic credentials, and seeks to enroll students who demonstrate the potential for academic success.

That potential is typically assessed by examination of high school course work and results from either the Scholastic Aptitude Test (SAT) or the American College Test Assessment (ACT). In general, all entering students should have completed four years of high school English; three years of history or social science; two years of science, both of which will involve laboratory work; three years of mathematics courses equivalent at least to Algebra I, Algebra II, and Plane Geometry; and two years of a foreign language. In addition, students are strongly encouraged to take a fourth year of mathematics.

High School Record

In general, the University of Maryland at College Park requires freshman applicants to earn a high school diploma prior to their first registration at the university. Applicants should make sure that final high school transcripts are sent to the Office of Undergraduate Admission prior to enrolling. All offers of admission are contingent upon satisfactory completion of current work.

The University of Maryland at College Park will consider mid-year grades for the senior year in high school if they are available when an application is initially considered. Early applicants may also be asked to submit a mid-year transcript to demonstrate senior year progress.

Each applicant's previous academic achievement is reviewed according to the information available on the student's high school transcript. The Admission Committee considers the following academic criteria when evaluating candidates for admission: nature and rigor of course load, grades in academic courses, progress as reflected in grades over time and performance compared with high school peers. High school grades will be reviewed in context of the level of course work taken.

Standardized Admission Test Scores

All freshman applicants must present results from either the ACT or the SAT. Test results may be submitted directly to the University of Maryland at College Park by the American College Testing Program for the ACT or the Educational Testing Service for the SAT or by the high school. The applicant is strongly urged to include his or her social-security number when registering for either test. The social security number will expedite processing of the application for admission. The reporting code for the University of Maryland at College Park is 1746 for applicants submitting the ACT, and is 5814 for those submitting the SAT. The university strongly recommends that these tests be taken as early as possible, but no later than January of the year of application. Further information on both tests may be obtained from high school guidance counselors or directly from the American College Testing Program, Iowa City, Iowa 52243 and the Educational Testing Service, Princeton, New Jersey 08540.

Additional Criteria

While standardized test scores and grade-point averages play an important role in the admission process, they are not the sole factors in determining a candidate's admissibility. Students are asked to submit a recommendation from their school counselor on the form provided in the application. A list of cocurricular activities in high school is requested on the application. An optional essay and additional letters of recommendation also will be considered. The Admission Committee may review a student in light of his or her unique talents and abilities. Students with accomplishments in art, music, leadership and other cocurricular endeavors should make this information available to the Office of Undergraduate Admission.

Application Forms

Application forms may be obtained by writing to the Office of Undergraduate Admission, Mitchell Building, University of Maryland, College Park, MD 20742-5235, or by calling (301) 314-8385. Application forms may be obtained in many high school guidance offices, as well.

Application Fee

A non-refundable $30.00 application fee is required with each application.

Fall Semester Freshman Admission

The University of Maryland at College Park strongly urges that all applicants apply early to assure consideration for admission. Because of space limitations, the campus may not be able to offer admission to all qualified applicants. A completed application will include official high school transcript and SAT or ACT report, application and $30.00 fee.

The University of Maryland at College Park operates according to a modified rolling admission plan. The admission committee begins reviewing applications in October. Decisions are mailed beginning in November, with most decisions released by the end of March. Some applicants may be asked to submit senior mid-year grades before a final decision may be made. The priority application deadline is December 1, and all qualified students who complete an application for admission by this date will be considered for merit-based scholarships. Most of the new first-year class is filled by the end of March, and subsequent applications are considered on a space-available basis. The following calendar describes the admission process for Fall semester applicants.

October	Admission committee begins to review applications.
December 1	Priority deadline for admission. Qualified students who apply by this date will be considered for merit-based scholarships. Admission committee begins to mail decisions.
February 15	Priority deadline for financial-aid applications. For more information about financial aid, consult chapter two of this catalog. Applicants wishing to submit

	senior mid-year grades should do so no later than this date.
March 31	Final admission decisions are released for candidates whose applications are complete. A limited number of students may be offered the opportunity to be placed on an admission waiting list.
May 1	Enrollment Confirmation Deadline. All admitted students must confirm their intention by returning the Enrollment Confirmation Form with a $100 deposit.
June 1	Students on the waiting list are notified of final admission decisions.

Spring Semester Freshman Admission

Applications for spring semester freshman admission are considered on a rolling, space-available basis. Applicants should submit a complete application as early as possible, but no later than December 15.

Financial Aid Applications

Students seeking financial assistance should apply for financial aid **before** receiving their letter of admission. The priority application deadline is February 15. More information is available in the section on Financial Aid in Chapter Two of this catalog.

Special Admission Options

To serve students who are not typical freshmen, the University of Maryland at College Park has developed special options for admission:

Admission Options for High Achieving High School Students

1. Concurrent Enrollment: Talented high school seniors have the opportunity to enroll at the University of Maryland at College Park for two courses, or seven credits, each semester. Successful applicants will have pursued a rigorous high school program and will have indicated exceptional performance and ability achieved over time. To apply, students must submit a) the completed application and fee, and b) high school transcript, c) an essay explaining why they are interested in the program, d) a letter of recommendation from the high school, and e) a letter of permission from the parents or guardian. Students must live within commuting distance. Tuition is assessed on a per-credit-hour basis. All mandatory fees apply in full.

2. Summer Enrollment: High school students with a minimum 3.00 grade-point average may enroll for courses during the summer preceding their junior or senior year. They must file a regular application for undergraduate admission, including an official high school transcript. Tuition is assessed on a per-credit hour basis. All mandatory fees apply in full.

3. Early Admission: Although the University of Maryland at College Park generally requires applicants to earn a high school diploma prior to their first full-time registration, the university will admit a limited number of well-qualified students without high school diplomas. Successful applicants will have pursued a rigorous high school program and will have indicated exceptional performance and ability achieved over time. Students must be within two credits of high school graduation and have the commitment of the high school to award a diploma after successful completion of the freshman year at College Park. To apply, students must submit a) the completed application and fee, b) high school transcript and SAT or ACT results, c) an essay explaining how they will benefit from the program, d) a letter of permission from the parents or guardian.

   Early admission students are eligible for on-campus housing, scholarships based on academic achievement, and the University Honors Program. Early application is advised.

4. Gifted Student Admission: The university will consider for admission a limited number of gifted students who have completed at least the seventh grade. Competitive applicants must have a superior academic record as measured by grades and standardized test scores. Students must have an initial conference with a member of the Undergraduate Admission staff. The Admission staff may, if it is deemed helpful to the admission decision, make referrals for further assessment to campus counseling services. Students admitted under this category are usually limited to six credits of enrollment per semester.

5. Students With Learning Disabilities: The University of Maryland at College Park expects that all students admitted to its degree programs will fulfill all of the published requirements for graduation. These requirements are widely published, and include fundamental studies in English and mathematics, as well as other general education requirements of the CORE programs, and all curriculum requirements of the major program and the degree-granted college or school. Students should not accept an offer of admission with the expectation that any requirement will be waived. For additional information about the admission process for students with documented learning disabilities, please contact the Office of Undergraduate Admission.

High School Equivalence Examination (GED)

Maryland residents who are at least 16 years of age and who have not received a high school diploma may be considered for admission, provided they have earned the high school General Education Equivalency (GED) certificate. In order to be admitted, the applicant must present an above average total score, as well as above average scores on each of the five parts of the test.

Non-Accredited/Non-Approved High School

Students from non-accredited/non-approved high schools who seek admission to the University of Maryland at College Park should contact the Office of Undergraduate Admission for information.

Advanced Placement (AP) Credit

The University of Maryland at College Park encourages applicants to seek AP credit so that academically successful students may move forward in their programs at an appropriate pace. However, credit is not granted for all exams offered by the College Board. Credits are accepted and courses are exempted, based on departmental approval, according to the chart on the following page. Students should arrange to have their scores sent directly to the University of Maryland at College Park from the Educational Testing Service; the code is 5814. Students should also inform their advisors at Orientation that they anticipate receiving AP credit, because this information may affect their placement in subject-matter courses.

If a student has already received AP credit at another institution, this credit will be reevaluated. The score received must be equivalent to the minimum score the University of Maryland at College Park accepted at the time the test was taken; otherwise, the credit will not be eligible for transfer. AP credits that are accepted are recorded as transfer credit on University of Maryland at College Park records, and figure in the total number of credits earned toward graduation. Students may not receive credit for AP **and** satisfactorily completing an equivalent course at the University of Maryland at College Park or elsewhere. If students earn credit in a course equivalent to an AP exam for which they also earned credit, the AP credit will be deleted from their records. Students should check with their advisors for detailed information on the assignment of AP credit.

Please note that the chart (pgs. 3-4) represents a general outline of AP credit. In all cases, credit is available for grades of 3 or higher only, subject to ongoing departmental reevaluation. All departments reserve the right to reevaluate the content of exams and to change the assignment of credit and course equivalences. Any new exams offered after February 15, 1990 may or may not be evaluated by the appropriate department. Students should check with their advisor at orientation.

Certain departments, particularly Math and Physics, have separate criteria for placement in courses and the assignment of credit. Students should check with those departments for additional information. All entering freshmen will be placed in math courses according to the University of Maryland at College Park math placement exam.

Admission to Limited-Enrollment Programs (LEP)

Certain colleges, schools, and departments within the university have taken steps to limit their enrollment in order to maintain quality programs. For the 1993-94 academic year, these will include: School of Architecture; College of Business and Management; College of Engineering; Department of Government and Politics; College of Journalism; Department of Psychology; Department of Special Education; and all teacher education majors. (continued on page 5)

AP EXAM TITLE	SCORE	EQUIVALENT CREDITS AWARDED	OR RELATED COURSES	APPLICABILITY MAJOR	CORE	USP	NOTES
ART HISTORY							
History of Art	3	3 Credits	ARTH 100	No	Yes	Yes	Students may use AP ARTH credit to fulfill CORE-Arts or one of the two USP Area C requirements. Students with scores of 4 or 5 may not take ARTH 201 for credit. Consult department with questions about placement, 405-1490.
	4 or 5	3 Credits	ARTH 201	Yes	Yes	Yes	
ART							
Art-Drawing	4 or 5	3 Credits	ARTT 110	Yes	No	No	Students interested in establishing credit for specific courses must submit portfolio to department for evaluation, 405-1442.
Art-General	4 or 5	3 Credits	**LL** Elective	No	No	No	
BIOLOGY	3	4 Credits	**LL** Elective	No	No	Yes	AP BIOL 105 fulfills requirement for all majors in the College of Life Science; also fulfills lab science requirement (CORE and USP). AP **LL** Elective fulfills USP Area B nonlab requirement. Consult department with questions about placement, 405-2080.
	4 or 5	8 Credits	BIOL 105 &	Yes	Yes	Yes	
			LL Elective	No	No	Yes	
CHEMISTRY	4	4 Credits	CHEM 103	Yes	Yes	Yes	Students with score of 4 may not take CHEM 103 or 103H for credit; with score of 5, also may not take 113 for credit. AP CHEM fulfills requirements for all Life Science majors; also fulfills lab science requirement (CORE and USP). Consult department with questions about placement, 405-1791.
	5	8 Credits	CHEM 103 &	Yes	Yes	Yes	
			CHEM 113	Yes	Yes	Yes	
COMPUTER SCIENCE							
Comp. Sci. A	4 or 5	4 Credits	**LL** Elective	No	No	No	Credit will be given for either the A or the AB exam, not both. Students are exempt from CMSC 112 and may not take CMSC 112 or CMSC 105 for credit. Consult department with questions about placement, 405-2672.
Comps Sci. AB	4	4 Credits	**LL** Elective	No	No	No	
	5	6 Credits	**LL** Elective	No	No	No	
ECONOMICS							
Macroeconomics	3 or 4	3 Credits	ECON 205	No	Yes	Yes	Economics majors must score 5 in order to receive credit which counts toward the major. AP ECON fulfills USP Area D or CORE-BSS requirements. Consult Department with questions about placement, 405-3491.
	5	3 Credits	ECON 201	Yes	Yes	Yes	
Microeconomics	3 or 4	3 Credits	ECON 105	No	Yes	Yes	
	5	3 Credits	ECON 203	Yes	Yes	Yes	
ENGLISH							
Literature and Composition	3	3 Credits	**LL** Elective	No	No	No	Students with score of 4 or 5 on either English examination satisfy the Fundamental Studies freshman writing requirement (ENGL 101). Students with credit for the Language examination may not receive credit for ENGL 291 or its equivalent. Consult department with questions about placement, 405-3825.
	4 or 5	6 Credits	ENGL 101 &	No	Yes	Yes	
			LL Elective	No	No	No	
Language and Composition	3	3 Credits	**LL** Elective	No	No	No	
	4 or 5	6 Credits	ENGL 101 &	No	Yes	Yes	
			LL Elective	No	No	No	
FRENCH							
Language	3	3 Credits	FREN 203	No	No	Yes	Language: Students with score of 3 who wish to continue must enroll in FREN 204 or higher; with score of 4 or 5 must enroll in 300 level courses. Literature; Students with score of 3, 4, or 5 must enroll in 300 level courses. AP FREN 203 fulfills one of two Area A USP requirements; AP FREN 250 fulfills one of two Area C USP's or the CORE-Lit. requirement. Students continuing French study should consult department for proper placement, 405-4034.
	4 or 5	6 Credits	FREN 204 &	Yes	No	No	
			FREN 211	Yes	No	No	
Literature	3	3 Credits	FREN 250	Yes	Yes	Yes	
	4 or 5	6 Credits	FREN 250 &	Yes	Yes	Yes	
			FREN 204	Yes	No	No	
GERMAN							
Language	3	4 Credits	GERM 101	No	No	Yes	Consult department for proper placement, 405-4091.
	4 or 5	8 Credits	GERM 101 &	No	No	Yes	
			GERM 102	No	No	Yes	
GOVERNMENT AND POLITICS							
United States	3, 4 or 5	3 Credits	GVPT 170	Yes	Yes	Yes	GVPT 170 fulfills one of two CORE-BSS requirements. Consult Department with questions about placement, 405-4150.
Comparative	3, 4 or 5	3 Credits	GVPT 280	Yes	No	No	

AP EXAM TITLE	SCORE	CREDITS AWARDED	EQUIVALENT OR RELATED COURSES	APPLICABILITY MAJOR	CORE	USP	NOTES
HISTORY							
United States	3	3 Credits	HIST 156 or	Yes	Yes	Yes	US History: A score of 3 will be awarded three credits as chosen by the student (HIST 156 or HIST 157, but not both). A score of 4 or 5 will be awarded six credits (HIST 156 and 157). Either course fulfills the CORE History requirement; HIST 156 fulfills USP Area A and HIST 157 fulfills USP Area D. European History: A score of 3 will be awarded three credits as chosen by the student (HIST 111 or 113, but not both). A score of 4 or 5 will be awarded six credits (HIST 111 and 113). Either course fulfills the CORE History requirement; HIST 111 and 113 fulfill USP Area A requirements.
	4 or 5	6 Credits	HIST 157 HIST 156 & HIST 157	Yes	Yes	Yes	
European	3	3 Credits	HIST 111 or	Yes	Yes	Yes	
	4 or 5	6 Credits	HIST 113 HIST 111 & HIST 113	Yes	Yes	Yes	
LATIN							
Vergil	4 or 5	4 Credits	LATN 201	Yes	No	Yes	Students with score of 4 or 5 may not take LATN 201 or lower for credit. LATN 201 counts for majors in "Classical Humanities" or "Greek and Latin." Consult department with questions about placement, 405-2013.
Catullus & Horace	4 or 5	3 Credits	LL Elective	No	No	No	
MATHEMATICS							
Calculus AB	3	4 Credits	MATH 140	Yes	Yes	Yes	Students who receive credit have fulfilled both Fundamental Studies math and a non-laboratory math/science requirement (CORE & USP). Students who receive credit for MATH 140 or 140 & 141 may not receive credit for MATH 220 or 220 & 221. Consult department with questions about placement, 405-5053.
	4 or 5	8 Credits	MATH 140 & MATH 141	Yes Yes	Yes Yes	Yes Yes	
Calculus BC	3, 4, or 5	8 Credits	MATH 140 & MATH 141	Yes Yes	Yes Yes	Yes Yes	
MUSIC							
Listening & Literature	3, 4, or 5	3 Credits	MUSC 130	Yes	Yes	Yes	Music majors with score of 4 on Theory exam take MUSC 151; majors with score of 5 receive credit for MUSC 150/151. Consult department with questions about placement, 405-5563.
Theory (Non-Majors)	4 or 5	3 Credits	MUSC 140	Yes	Yes	Yes	
Theory (Majors)	4 or 5	3 Credits	MUSC 150/ MUSC 151	Yes	No	No	
PHYSICS							
Physics B	4 or 5	6 Credits	See Note	See Note			Students completing any of the Physics AP Examinations with scores of 3, 4, or 5 must see the Physics Department for proper evaluation and placement. Please bring documentation concerning scores on the Calculus BC AP Examination and/or the UMCP Math Department Placement scores. These scores will be considered in determining evaluation and placement. Under certain circumstances credit may apply to CORE and USP science requirements. Contact Student Services in the Physics Department, 405-5980.
Physics C							
Mechanics	3, 4 or 5	3 Credits	See Note	See Note			
Elec. & Magnetism	3, 4 or 5	3 Credits	See Note	See Note			
PSYCHOLOGY	4 or 5	3 Credits	PSYC 100	Yes	Yes	Yes	The AP exam counts towards the 35 credits required in the major; instead of needing a 2.5 GPA in Psyc 100 and 200, the student must earn a 2.5 GPA in Psych 200 and either Psyc 221 or 235.
SPANISH							
Language	3	3 Credits	SPAN 201	No	No	Yes	Language: Students with score of 3 who wish to continue must enroll in SPAN 202, 211, or 221; with score of 4 or 5 must enroll in 300 level courses. Literature: Students with score of 3, 4, or 5 must enroll in 300 level courses. AP SPAN 201, and 202 fulfill Area A USP requirements. AP SPAN 221 fulfills one of two Area C USP requirements. Students continuing Spanish study should consult department for proper placement, 405-6452.
	4 or 5	6 Credits	SPAN 202 & SPAN 207	Yes Yes	No No	Yes No	
Literature	3	3 Credits	SPAN 221	Yes	Yes	Yes	
	4 or 5	6 Credits	SPAN 202 & SPAN 221	Yes Yes	No Yes	Yes Yes	

Please Note: LL refers to courses at the lower (100 and 200) level. Students may not receive credit both for AP courses and for equivalent UMCP or transfer courses. AP credit will be deleted in such cases. Decisions about applicability of courses to CORE are updated on an ongoing basis. Consult Schedule of Classes for most recent information. Native speakers may not earn AP credit for the French, German, or Spanish language exams.

Freshmen: Admission for new freshmen to Limited-Enrollment Programs is determined on a space-available basis. Most freshmen will gain entrance to the major of their choice. Because space may be limited for a particular major, early application is encouraged. Freshmen who are directly admitted to an LEP will be subject to a performance review when they complete 45 college credits. The review varies from program to program, but always includes satisfactory performance in a set of appropriate courses. Students not passing the review will be required to choose another major. See the academic program description for specific details.

Freshmen not directly admitted to an LEP may enroll in the Division of Letters and Sciences. Students are not guaranteed admission to an LEP at a later date, although they may gain admission by meeting the requirements outlined in their particular program by the time they complete 56 credits at College Park. See the following section on LEP transfer admission and the LEP program descriptions for further details about this option.

Transfers: Transfer students and on-campus students wishing to change their major to an LEP must meet a set of gateway courses with minimum grades in order to be admitted to the program. Space is limited in each program, and the most qualified applicants will be admitted each semester. Students will have one opportunity only to apply to a particular LEP, and must complete the gateway requirements by the semester in which they complete 56 credits. Specific requirements for each of the limited-enrollment programs may be found in the descriptions of academic majors elsewhere in this catalog.

Transfer students who are not directly admissible to an LEP upon application to the university will be assigned to an alternate program. Those with fewer than 56 credits will be assigned to the Division of Letters and Sciences, and will be allowed one opportunity to meet the gateway requirements by the time they complete 56 credits. Students with more than 56 credits will be admitted to an interim program for one semester in which they will be advised regarding their qualifications for the LEP and, in some cases, the need to choose another major. A limited number of students in extraordinary circumstances will be considered under appeal for each LEP. Contact the Counselor for Limited-Enrollment Programs at (301) 314-8378 for further information.

Preprofessional Programs and Options

The University of Maryland at College Park offers preprofessional advising in Dental Hygiene, Dentistry, Law, Medical and Research Technology, Medicine, Nursing, Optometry, Osteopathy, Pharmacy, Physical Therapy, Podiatry, and Veterinary Medicine. This advising will guide the student to the best preparation for advanced study and training in these fields. For additional information, see the description of "Campus-Wide Programs" in this catalog.

Participation in a preprofessional program at the University of Maryland at College Park does not guarantee admission to another branch of the university or to another institution.

Students who have already earned more than thirty semester hours at another college-level institution, and who seek admission to preprofessional programs in Nursing, Pharmacy, Dental Hygiene, Physical Therapy, and Medical and Research Technology, should contact the academic advisor for the preprofessional programs at the University of Maryland at College Park before filing an application for the University of Maryland at College Park. Please address correspondence to the academic advisor of the specific preprofessional program to which you are applying; for example, Advisor for Pre-Nursing Program, 3103 Turner Laboratory, University of Maryland, College Park, MD 20742.

Special Applicants

Golden Identification Card Program

The University of Maryland at College Park participates in the University of Maryland's Golden Identification Card Program. The institution will make available courses and various services to persons who are 60 years of age or older, who are legal residents of the State of Maryland, and who are retired (not engaged in gainful employment for more than 20 hours per week). When persons eligible for this program are admitted to the university, they register on a space-available basis for credit courses as regular or special students in any session, and receive a Golden Identification card. Golden ID students must meet all course pre-requisite and co-requisite requirements. Tuition is waived for these courses, although Golden ID students pay part-time student fees as other students do. Golden ID students may register for a maximum of three courses per term. Golden ID students are not eligible for Consortium courses. The Golden Identification Card will entitle eligible persons to certain academic services, including the use of the libraries and the shuttle bus service. Such services will be available during any session only to persons who have registered for one or more courses for that semester. Golden ID students also have the opportunity to become involved with the Golden ID Student Association which provides cultural and social events, course recommendations, and peer advising. Additional information may be obtained from the Office of Undergraduate Admission, Mitchell Building, (301) 314-8385, or the Career Center, 0119 Hornbake Library, 405-3956.

Multi-Ethnic Students

In keeping with the University Affirmative Action Program, special consideration will be given to multi-ethnic students who demonstrate the potential for academic success. Multi-ethnic students are urged to contact both an admission counselor in the Office of Undergraduate Admission, as well as the Office of Multi-Ethnic Student Education, 1101 Hornbake Library, (301) 405-5616.

Non-Degree (Special) Students

Applicants who qualify for admission but do not desire to work toward a baccalaureate degree may be admitted as non-degree-seeking (special) students.

Special students who have received a baccalaureate degree are advised that no credit earned while enrolled as special students may be applied at a later date to a graduate program. These post-baccalaureate students may enroll in undergraduate courses for which they possess the necessary prerequisites, but may not enroll in courses restricted to graduate students only. Students who wish to take courses at the graduate level (600 and above) must contact the Graduate School for information concerning admission requirements for Advanced Special Student status.

Non-degree seeking (special) students who do not have a baccalaureate degree must submit transcripts and meet regular admission standards. Transcripts are not required from students with baccalaureate degrees. Because of space limitation, several departments require permission be given in advance to enroll as a non-degree student. Please contact the Office of Undergraduate Admission for further information.

Returning Students and Veterans

Applicants who have not attended school for more than five years, or who have had military experience, should contact both an admission counselor and the Returning Students Program, 314-7693.

Students returning to the University of Maryland at College Park after a separation of five calendar years may petition their appropriate dean to have a number of grades and credits from courses previously taken at the University of Maryland at College Park removed from the calculation of their cumulative grade-point averages and from the credits applied toward graduation requirements. For more information, consult the section on Academic Regulations and Requirements.

INTERNATIONAL STUDENT ADMISSION

The University of Maryland values the contribution international students make to the College Park academic community. Therefore, applications from the international community are welcomed. However, due to the differences between foreign educational systems and education in the United States, international students will face a number of challenges in adapting to study at the university. Students who have received, throughout their secondary school and university level work, marks or examination results considered to be "very good" to "excellent" are those who are most likely to succeed at our institution. Admission for international students is competitive and offered only to those who are considered by the university to be better than average in their own educational setting. Students also have to demonstrate, in their secondary level studies, that they have successfully completed a diversity of subjects representing language, mathematics, physical or biological science and social sciences. Because of the keen competition at the University of Maryland, we suggest applicants apply early.

Those who will hold the following visa types, A, E, F, G, H, I, J, and L, will be admitted on the basis of their academic backgrounds and must present records with marks of "very good" to "excellent". Non-immigrants, who have completed four years of U.S. secondary education (grades 9 through 12), will be evaluated on the same basis as U.S. Citizens and Permanent Residents/Immigrants. International applicants who present one full year of acceptable university level credit will be considered for admission as transfer students. Those with less than one full year of acceptable credit must also meet the freshman admission requirements for international applicants.

International students applying for admission to undergraduate programs at the University of Maryland at College Park must submit: 1) an application and fee for admission; 2) copies of official secondary school records, including any secondary external examinations, such as the G.C.E. "Ordinary" level examinations, or the Baccalaureate; 3) transcripts of any university level studies completed in the United States or elsewhere. Original documents written in a language other than English must be accompanied by certified English translations.

International students who have completed grades 10, 11, and 12 in a United States high school must also take the Scholastic Aptitude Test (SAT) or American College Test Assessment (ACT) and submit the results. All freshman applicants to the College of Engineering, regardless of where they have studied, must present SAT scores. Admission to limited-enrollment majors (see "Admission to Limited-Enrollment Majors" for identification of these majors) requires international students to have marks of no less than "excellent" in previous education.

International students on F-1 Student visas accepted for admission to the university will receive the I-20 form from the office of International Education Services (IES); this form is needed to secure, transfer, and extend the Student visa after applicants have certified their financial support and submitted evidence of satisfactory English proficiency to the IES office.

International students accepted for admission will be expected to plan their arrival sufficiently in advance of the registration period to secure housing and attend the special orientation program for international students that is held the week prior to registration.

English Proficiency

All applicants must demonstrate a satisfactory level of English proficiency. Such proficiency is necessary to pursue a full course of study at the University of Maryland at College Park. All non-native speakers of English must submit a score report from the Test of English as a Foreign Language (TOEFL) during the application process. Non-native speakers who have received a degree from a tertiary level institution in the U.S., English-speaking Canada, United Kingdom, Ireland, Australia, New Zealand, or Commonwealth Caribbean are exempt from the TOEFL requirement. Native speakers of English are defined as those educated entirely in the U.S., English-speaking Canada, United Kingdom, Ireland, Australia, New Zealand, or Commonwealth Caribbean. Applicants who are unsure as to whether or not they need to take the TOEFL should contact the Office of International Education Services. Non-native speakers of English who have graduated from U.S. high schools must submit TOEFL examination results or a score of 350 or higher on the SAT verbal section. For information and a TOEFL application brochure, write to: TOEFL, Box 2896, Princeton, NJ 08540.

Application Deadlines

All applicants must submit all foreign educational credentials, including certified English translations if the original documents are in a language other than English. All admission decisions will be released on a rolling basis.

1. All non-immigrants holding visas A, E, F, G, H, I, J and L must meet the following application deadlines:

   Fall semester—March 1
   Spring semester—August 1

2. Permanent residents with foreign documents and U.S. citizens with foreign documents should submit their completed applications by the following deadlines:

   Fall semester—April 30
   Spring semester—November 1

Return of Foreign Records

Transcripts, records and mark sheets of applicants with foreign credentials are maintained by the office of Undergraduate Admissions for two years. If these documents are original copies, the student must request their return within two years of application. At the end of this period, the records are destroyed.

Immigrant Students

Immigrant applicants for admission at the undergraduate level are admissible under the same guidelines as U.S. citizens EXCEPT that applicants, including transfer applicants, whose native language is other than English must ALSO demonstrate a satisfactory level of English proficiency to pursue an approved course of study.

TRANSFER ADMISSION

A student who has attended any regionally accredited institution of higher education following graduation from high school and attempted twelve or more credits will be considered for admission as a transfer student. Transfer applicants must be in good academic and disciplinary standing at their previous institutions to be eligible for transfer to the University of Maryland at College Park.

Where the number of students desiring admission exceeds the number that can be accommodated at this institution, or in a particular professional or specialized program, admission will be based on overall grade-point average and the strength of the academic program the student has pursued.

Requirements

Admission for transfer applicants is primarily based on the number of credits a student has earned and the cumulative grade-point average for all college-level work. In calculating eligibility, the university will use the average stated on the transcript by the sending institution. When an applicant has attended more than one institution, a cumulative average for all previous college work attempted will be computed. To be considered, course work must have been completed at a regionally accredited college or university. All students with grade-point averages below 3.0 will be considered on a space-available basis. These requirements apply to all transfer candidates, including those seeking to transfer from another institution in the University of Maryland system. In accordance with Maryland Higher Education Commission transfer policies, applicants from Maryland community colleges are, in some instances, given special consideration, and, when qualified, may be admitted with a cumulative grade-point average of 2.0 or higher. Students who were not admissible as high school seniors must complete at least 28 semester hours with the grade-point average as stated above.

Application Deadlines

Semester	Date
Spring	December 1
Fall	July 1

Transfer from Maryland Community Colleges

Currently, Maryland residents who attend Maryland public community colleges may be admitted in accordance with the criteria outlined in the general statement above. The university subscribes to the policies set forth in the Maryland Higher Education Commission transfer policies. Where the number of students desiring admission exceeds the number that can be accommodated in a particular professional or specialized program, admission will be based on criteria developed by the university to select the best qualified students.

Articulated transfer programs are available at each Maryland community college. An articulated transfer program is a list of community college courses that best prepare the applicant for a particular course of study at the University of Maryland at College Park. If the applicant takes appropriate courses specified in the articulated program and earns an accept-

able grade, he/she is guaranteed transfer with no loss of credit. Articulated transfer programs help students plan their new programs after changing career objectives. Computerized articulation information, called ARTSYS, is available at the Office of Undergraduate Admission at the University of Maryland at College Park and in the transfer advisor's office at each of the community colleges. Applicants can eliminate all doubt concerning transfer of courses by following articulated programs.

Transfer of Credits

Admitted students will receive a preliminary review of transfer credit within two weeks after the letter of admission. An official review of transfer credit occurs thereafter, with final determination of applicability made by an academic advisor/evaluator in the office of the appropriate dean for the major. Generally, college-level courses completed at regionally-accredited institutions will transfer, provided that grades of at least "C" are earned and the course content is similar in content and scope to work offered at College Park. The regional accrediting bodies are: Middle States Association of Colleges and Schools; New England Association of Schools and Colleges; North Central Association of Colleges and Schools; Northwest Association of Schools and Colleges; Southern Association of Colleges and Schools; and Western Association of Schools and Colleges. Up to 60 credits from a community or two-year college or up to 90 credits from a four-year institution may be considered for transfer. Students are required to complete at least their final 30 credits on the College Park campus to earn a degree.

Transfer of course work completed at Maryland public colleges and universities is covered by the Maryland Higher Education Commission (MHEC) transfer policies (see complete text later in this section). College Park will accept grades of "D" or better from appropriate course work completed at a regionally-accredited Maryland public institution, including other institutions in the University of Maryland System.

Each college-level course will be evaluated individually, with applicability toward major or general education requirements determined by the appropriate academic unit. College Park does not transfer blocks of courses, such as those completed through the Associate's Degree. See the appropriate sections of the catalog for specific general education and major requirements.

Credit will be posted to the College Park record only from official transcripts sent from the institution at which the credit was completed. Students who have earned credit through Advanced Placement (AP) or College-Level Examination Program (CLEP) subject area exams must have scores sent directly from the testing board, even if they are already posted on a transcript from another institution.

College courses taken at a high school and taught by high school faculty are not transferable to College Park, even if they are given in cooperation with a regionally-accredited college or university.

SOURCE	ACCEPT CREDITS?	EQUIVALENT OR REQUIRED CREDITS	GRADES/SCORES WHERE APPROPRIATE
ACE Non-Collegiate Courses	No		
Advanced Placement Program (CEEB)	Yes	E or R[1]	3 or higher (see list on page 3)
CLEP	Yes	E or R[1]	See list on page 34
Community College of the Air Force	Yes	E or R[1]	C– or higher equivalent grade as appropriate to department
Correspondence courses	No		
Dantes	No		
Defense Language Institute	Yes	E or R[1]	Scores as Recommended by A.C.E.
Department exams from other colleges	Yes	E or R[1]	C– or higher
High school articulation (courses at high school)	No		
Life experience	No, unless validated through CLEP or UMCP Departmental exam		
Military credit	No		
Nursing school courses: by transfer/by challenge exam	No[2]		
Other articulation agreements (proprietary schools, public agencies, etc.)	No, unless a newly-formed Maryland school operating under auspices of MHEC		
PONSI non-collegiate work	No		
Portfolio credits from other colleges	No		

[1] Courses must be similar in depth and scope to UMCP courses. Applicability is determined by the appropriate dean.
[2] Professional courses are generally not transferable. Courses taken at a regionally-accredited institution may be reviewed by the appropriate dean.

MARYLAND HIGHER EDUCATION COMMISSION TRANSFER POLICIES

Authorization

These Student Transfer Policies, as adopted by the Maryland Higher Education Commission, will supersede the transfer policies in effect since 1972, as modified and adopted in 1979. These policies shall be effective and applicable to students first enrolling in Maryland public post-secondary educational institutions in Fall 1990, and thereafter.

Applicability of Policies

These transfer policies and procedures apply to admission, credit transfer, program articulation, and related matters for undergraduate students who wish to transfer between Maryland public colleges and universities. The Maryland Higher Education Commission also recommends them to Maryland independent institutions.

Rationale

A major premise of the Maryland public higher education system is that a student should be able to progress from one segment of higher education to another without loss of time or unnecessary duplication of effort. The Maryland Higher Education Commission's objective is to ensure that a student who intends to complete a baccalaureate degree and who begins his or her work at a community college, is able to move towards the completion of that degree by transferring to a baccalaureate degree-granting institution without loss of credit or unnecessary duplication of course content. At the same time, the Commission recognizes that some students change their educational objectives as they progress in their studies, indeed, sometimes because their studies expose them to new

ideas and possibilities. These students should also be able to complete their general education courses and have them transfer without loss of credit.

One means of accomplishing this objective is through the development of recommended transfer programs between two- and four-year institutions. A recommended transfer program, developed by careful planning and agreement between specific two- and four-year institutions, is that recommended sequence of courses which a student takes at a community college which will constitute the first two years of a baccalaureate degree program at a Maryland public institution of higher education.

The Maryland Higher Education Commission recognizes that students select institutions of higher education for a variety of reasons. These policies also recognize that each Maryland public college or university has a separate and distinct mission, and that each has the responsibility to establish and maintain standards of expectations for courses, programs, certificates, and degrees consistent with that mission. Nevertheless, effective and efficient transfer of credits between and among these institutions must occur within the larger context of the statewide structure of baccalaureate and community college education.

Successful and harmonious articulation depends upon

- firm agreement that the needs of the student should be a primary concern in developing articulation procedures, while maintaining the integrity of educational programs;
- the establishment of clear and equitable policies to assure optimum accessibility for transfer students with minimal loss of credits and minimal duplication of course content;
- mechanisms for evaluating and resolving difficulties students may encounter in moving from one school to another;
- free and continuous communications among institutions;
- mutual respect for institutions and their missions;
- adaptability, within a context of understanding that changes affect not only the institution making changes but also the students and institutions impacted by the changes;
- free exchange of data among institutions; and
- timely exchange of information relative to students' progress.

The intended principal benefactor is the student, whose uninterrupted progress towards a degree—based on successful academic performance—is best served by the open exchange of current information about programs, and is best protected by a clear transfer policy pertaining to the public segments of higher education in Maryland.

The State's interests are similarly served through such a policy, which results in the optimal use of its higher education resources by reducing the costly duplication that results in the needless waste of the valuable time and effort of Maryland students, faculty, and administration.

Institutional interests and missions are also protected by this systematic approach, which permits them to incorporate into their academic planning more accurate projections about the programmatic backgrounds of transferring students.

In more specific ways this document's purpose is to:

- Define broad areas of agreement among the public two-year and four-year institutions of higher education pertaining to facilitating the transfer of students within these segments;
- Provide a mechanism for continuous evaluation of programs, policies, procedures, and relationships affecting transfer of students;
- Provide such revisions as are needed to promote the academic success and general well-being of the transfer student;
- Provide a system of appeals beginning on the campus level to resolve difficulties that students experience in transfer.

While policies and procedures can be established which facilitate the transfer of students, it is the responsibility of the student, as the principal in the process, to know and follow the procedures defined.

I. POLICIES

The fair and equal treatment of "native" and "transfer" students is the fundamental principle of these policies.

A. Admission of Transfer Students

1. Associate of Arts Degree Holders (or those with 56 or more credit hours):

   a. Students who have completed the Associate of Arts degree or students who have completed 56 semester hours of credit with a cumulative grade point average (GPA) of 2.0 or higher on a scale of 4.0, in either case in college and university parallel courses, shall not be denied direct transfer to an institution. (Only the last grade received in a course repeated by the student shall be used in computing a cumulative grade point average.)

      If the number of students seeking admission exceeds the number that can be accommodated in a particular professional or specialized program, or certain circumstances exist which limit the size of an upper division program or the total enrollment, admission decisions will be based on criteria developed and published by the receiving institution, providing fair and equal treatment for native and transfer students.

   b. Courses taken at a Maryland community college as part of a recommended transfer program oriented toward a baccalaureate degree shall be applicable to related programs at a Maryland public institution granting the baccalaureate degree.

   c. The Associate of Arts degree (or those with 56 or more credit hours) shall meet the lower level general education requirements at the receiving institution. In cases where the general education requirements at the receiving institution exceed those of the sending institution, the transfer student will be required to take no more than the same number of lower division general education credits than those required of the native student.

   d. The determination of the major program requirements for a baccalaureate degree, including courses in the major taken in the lower division, shall be the responsibility of the faculty of the institution awarding the degree. The receiving institution may set major requirements which may fulfill general education requirements simultaneously. However, in developing its lower division course work, the degree-granting institution would be expected systematically to exchange information with the community college to assure the transferability of credits into that program.

2. Transfer Without an Associate of Arts Degree (or fewer than 56 credit hours):

   a. Students from Maryland community colleges who were admissible to the four-year institution as high school seniors, and who have attained a cumulative 2.00 average in college/university parallel courses shall be eligible for transfer to the institution regardless of the number of credits.

   b. Students who were not admissible as high school seniors, but who have earned sufficient credits to be classified by the receiving institution as sophomores, must meet the stated admission criteria of the receiving institution. Such requirements for admission may vary by program, according to criteria developed and published by the receiving institution. Such admission criteria shall provide for equal access for native and transfer students.

   c. Transferable courses defined as meeting the general education requirements at the sending institution.

B. Credit Transferability

1. Traditional Credit:

   a. Credit earned at any public institution in Maryland shall be transferable to any other public institution provided:

      the credit is from a college or university parallel course or program;

the grades in the block of courses transferred average 2.0 or higher; and

the acceptance of the credit is consistent with the policies of the receiving institution governing students following the same program. (For example, if a "native" student's "D" grade in a specific course is acceptable in a program, then a grade of "D" earned by a transfer student in the same course is also acceptable in the same program.)

b. Credit earned in or transferred from a community college normally shall be limited to half the baccalaureate degree program requirement, but in no case more than 70 credits, and to the first two years of the undergraduate educational experience.

2. Non-Traditional Credit:

a. The assignment of credit for AP, CLEP, or other nationally recognized, standardized examination scores presented by transfer students will be determined according to the same regulations that apply to native students in the receiving institution, and such assignment must be consistent with the State minimum requirements.

b. Transfer of credit from the following areas shall be consistent with the State minimum standards and shall be evaluated by the receiving institution on a course-by-course basis:

technical courses from career programs

course credit awarded through articulation agreements with other segments or agencies

credit awarded for clinical practical or cooperative education experiences

credit awarded for life and work experiences.

The basis for the awarding of the credit shall be indicated on the student's transcript.

c. The baccalaureate degree granting institution shall inform transfer students of the procedures through which coursework for which there is no clear equivalency can be validated, such as ACE recommendations, portfolio assessment, credit through challenge examinations and satisfactory completion of the next course in sequence in the academic area.

d. The baccalaureate degree-granting institution shall use validation procedures when a transferring student successfully completes a course at the lower division level which the degree-granting institution offers at the upper division level and, once validated, the credits earned for the course shall be substituted for the upper division course.

C. Program Articulation

Recommended transfer programs will be developed through consultation between the two institutions that allow students aspiring to the baccalaureate degree to plan their programs. These programs will constitute freshman/sophomore level coursework to be taken at the community college in fulfillment of the receiving institution's lower division coursework requirement.

II. POLICIES TO PROMOTE THE ACADEMIC SUCCESS AND GENERAL WELL-BEING OF TRANSFER STUDENTS

A. By the Sending Institutions:

1. Students who enroll at Maryland community colleges shall be encouraged to complete the Associate of Arts degree or to complete 56 hours in a recommended transfer program which includes both general education courses and courses applicable toward the program at the receiving institution.

2. Community college students are encouraged to choose as early as possible the institution and program into which they expect to transfer.

3. Sending institutions shall provide to community college students information about the specific transferability of courses at four-year colleges.

4. Information about transfer students who are capable of honors work or independent study shall be transmitted to the receiving institution.

5. The sending institution should promptly supply the receiving institution with all the required documents provided the student has met all requirements of the sending institution for transfer.

B. By the Receiving Institutions:

1. Admission requirements and curriculum prerequisites shall be stated explicitly in institutional publications.

2. Transfer students from newly established public colleges which are functioning with the approval of the Maryland Higher Education Commission shall be admitted on the same basis as applicants from regionally accredited colleges.

3. The receiving institution shall evaluate the transcripts of degree seeking transfer students as expeditiously as possible, and shall notify students of the results no later than at the completion of the students' first semester of enrollment at the receiving institution. Students shall be informed both of which courses are acceptable for transfer credit and which of those are applicable to the student's intended program of study.

4. Transfer students shall be given the option of satisfying institutional graduation requirements which were in effect at the receiving institution at the time they enrolled as freshmen at the sending institution. In the case of major requirements, the transfer student has the option of satisfying the major requirements in effect at the time when the student was identifiable as pursuing the recommended transfer program at the sending institution. These conditions are applicable to the student who has been continuously enrolled at the community college by completing a minimum of 12 hours within the calendar year.

III. MAINTAINING PROGRAMMATIC CURRENCY, STUDENT APPEALS, AND PERIODIC REVIEW

A. Programmatic Currency:

1. Receiving institutions shall provide to the community college current and accurate information on recommended transfer programs and the transferability status of courses. Community college students shall have access to this information.

2. Recommended transfer programs will be developed with each community college whenever new baccalaureate programs are approved by the degree-granting institution.

3. When considering curricular changes, institutions shall notify each other of the proposed changes that might affect transfer students. An appropriate mechanism shall be created to ensure that both two and four year public colleges provide input or comments to the institution proposing the change. Sufficient lead time shall be provided to effect the change with minimum disruption. Transfer students shall not be required to repeat equivalent coursework successfully completed at the community college.

B. Appeal Process:

1. A campus-based system of appeals which will not exceed three levels shall be implemented at each institution. The procedures for appeal shall be published in the college's catalog and student handbook.

2. If a student believes he or she has not been treated fairly in the application of these policies, the student may contact the receiving institution's Transfer Coordinator (see Periodic Review section 2 below) who will provide information on academic appeals policies and procedures at that institution, as described in catalogs and other official publications.

3. Initially, differences of interpretation regarding the award of transfer credit shall be resolved between the student and the institution to which he or she has transferred. If a difference remains unresolved after using the appropriate appeal procedures of the receiving institution, the student shall present his

or her evaluation of the situation to the institution from which the student has transferred. Representatives from the two institutions shall then have the opportunity to resolve the differences.

4. The sending institution shall have the right to present any unresolved case to the Advisory Articulation and Transfer Committee (se Periodic Review section 3 below) through a written appeal. A hearing may be requested by either party. The Committee shall receive relevant documentation, opinions, and interpretations in writing from the sending and receiving institutions and from the student. The Committee will hold hearings if required and make a recommendation as to the merits of the appeal. The Secretary will forward the recommendation to the appropriate segment head for disposition.

5. A student must initiate his or her complaint about the awarding of transfer credits within one calendar year of transferable credit notification from the receiving institution.

6. It shall be the responsibility of both the sending and receiving institutions to make certain that any student who is considering any appeal, that he/she be provided a copy of the appeal procedure and be advised and counseled on the appeal process.

C. Periodic Review:

1. The progress of students who transfer from two-and four-year institutions within the State shall be reported annually by the receiving institution to each community college and to the Secretary of the Maryland Commission of Higher Education. The Commission will share the results with the State Board for Community Colleges. Such information shall include longitudinal reports on the subsequent academic success of enrolled transfer students, including graduation rates, by major subject areas. Comparable information on the progress of native students shall be included.

2. Each public institution of higher education shall designate a Transfer Coordinator, who serves as a resource person to transfer students at either the sending or receiving campus, and who is responsible for overseeing the application of the policies and procedures outlined in this plan. The Transfer Coordinator shall also assist in interpreting transfer policies to the individual student and to the institution.

3. The Maryland Higher Education Commission shall establish a permanent Transfer Advisory Committee that meets regularly to review transfer issues and recommend policy changes as needed. The Committee shall also arbitrate disagreements as necessary and receive written appeals as described in the "student appeals" section above.

4. The Transfer Advisory Committee shall review these transfer policies at least every five years and recommend changes as necessary.

IV. DEFINITIONS

A. Native Student — A student whose initial college enrollment was at a given institution of higher education and who has not transferred to another institution of higher education since that initial enrollment.

B. Parallel Programs — The program of study (or courses) at one institution of higher education which has comparable objectives as those at another higher education institution, e.g. a transfer program in psychology in a community college is definable as a parallel program to a baccalaureate psychology program at a four year institution of higher education.

C. Receiving Institution — The institution of higher education at which a transfer student currently desires to enroll.

D. Recommend Transfer Program — A planned program of courses, including both general education and courses in the major, taken at the community college which is applicable to a baccalaureate program at a receiving institution; ordinarily the first two years of the baccalaureate degree.

E. Sending Institution — The institution of higher education of most recent previous enrollment by a transfer student at which transferable academic credit was earned.

F. Transfer Student — A student entering an institution for the first time with academic credit earned at another institution which is applicable for credit at the institution the student is entering.

RESIDENCY INFORMATION

Determination of In-State Status for Admission, Tuition, and Charge Differential Purposes: See Appendix H for the complete text of this policy.

An initial determination of in-state status for admission, tuition, and charge-differential purposes will be made by the university at the time a student's application for admission is under consideration. The determination made at that time, and any determination made thereafter shall prevail in each semester until the determination is successfully challenged. Students may challenge their classification by submitting a petition. Petitions are available in the office of Undergraduate Admission. The deadline for meeting all requirements for in-state status and for submitting all documents for reclassification is the last day of late registration for the semester if the student wishes to be classified as an in-state student.

The volume of requests for reclassification may necessitate a delay in completing the review process. It is hoped that a decision in each case will be made within ninety days of receipt of a request for redetermination and all necessary documentation. During this period of time, or any further period of time required by the university, fees and charges based on the previous determination must be paid. If the determination is changed, any excess fees and charges will be refunded.

Petitions, related documents and questions concerning the policy of the University of Maryland for the determination of in-state status should be directed to the Campus Classification Office, 1116 Francis Scott Key Hall, University of Maryland, College Park, MD 20742, (301) 405-2030.

Students Classified as In-State for Admission, Tuition, and Charge-Differential Purposes: Students classified as in-state for admission, tuition, and charge-differential purposes are responsible for notifying the office of Undergraduate Admission in writing within fifteen days of any change in their circumstances that might in any way affect their classification at the University of Maryland at College Park.

The written notice of change in circumstances or questions concerning the policy of the University of Maryland for the determination of in-state status should be directed to the Office of Undergraduate Admission, Ground Floor, Mitchell Building.

READMISSION AND REINSTATEMENT

Students who do not maintain continuous registration must apply for readmission or reinstatement to reenroll at the university. A student who was previously admitted and did not register for that semester must apply again for admission. A student who was previously admitted, registered, and canceled this registration, must also apply for admission.

Readmission

Students must apply for readmission if they interrupt registration for one or more semesters and were neither academically dismissed nor withdrew at the conclusion of the last semester of attendance.

Reinstatement

Students who withdraw or who are academically dismissed from the university must apply for reinstatement. All applications for reinstatement are reviewed by a Faculty Petition Board. Students may apply for reinstatement for the semester immediately following withdrawal/dismissal or for any subsequent semester. The Board members are empowered to grant reinstatement if circumstances warrant such action.

Students who are denied reinstatement may apply for future reinstatement in accordance with published deadlines. Students may be required to

comply with specific recommendations made by the Faculty Petition Board in order to qualify for reinstatement.

Deadlines

There are no deadlines for readmission. However, students are encouraged to apply early in order to take advantage of early registration.

For full consideration, students applying for reinstatement must observe the following deadlines:

Fall Semester—July 15
Spring Semester—December 1
Summer Session I—May 1
Summer Session II—June 1

Summer School

Fall dismissals who are denied reinstatement for the spring semester are not eligible to attend summer sessions unless or until they are approved for reinstatement. Students dismissed at the end of a spring semester may attend the first and\or second summer sessions prior to being reinstated. However, these students must be approved for reinstatement in order to attend during the subsequent fall semester.

Clearances

Clearances from Judicial Programs, the Bursar's office, Health Center, or International Education Services may be requested of the applicant.

Applications

Applications for readmission and reinstatement are available at the Information Counter, Undergraduate Admission, Ground Floor, Mitchell Building. Applications may also be requested by phone.

Additional Information

For additional information contact the Reenrollment Office, 0117 Mitchell Building, University of Maryland, College Park, MD 20742, 314-8382.

GRADUATE STUDENT ADMISSION

Those who have earned or will earn a bachelor's degree at a regionally accredited college or university in the United States, or the equivalent of this degree as determined by the University of Maryland at College Park in another country, will be considered for admission to the graduate school at College Park. Criteria are listed in the Graduate School's Application Brochure obtainable from the graduate school. Requests for information about graduate programs or correspondence concerning application for admission to the graduate school at the University of Maryland at College Park should be addressed to Admissions Office, University of Maryland Graduate School, Lee Building, College Park, MD 20742. To request an application by telephone, call (301) 314-9304.

CHAPTER 2

FEES, EXPENSES AND FINANCIAL AID

FEES AND EXPENSES

Student Accounts Office

1135 Lee Building, 405-9041 and 403-4641

Tuition and fees for the University of Maryland at College Park are listed below. The university requires that all deposits and fees be paid by stated deadlines, or penalties must be imposed. Many potential administrative difficulties can be avoided if students carefully follow published procedures and notify the appropriate office(s) of any changes that might affect their financial obligation to the university. This includes notifying the Bursar's Office of changes of address, so that mail affecting the student's financial relationship with the university will not be delayed or returned.

College Park sponsors a low cost commercial ten month budget plan, TUITION PLAN, for the combined fall and spring semesters. Also, a single semester three payment plan may be available, albeit somewhat more expensive. Information regarding these plans is available by calling 1-800-343-0911.

All charges incurred during a semester are payable immediately. Returning students will not be permitted to complete registration until all financial obligations to the university, including library fines, parking violations, and other penalty fees and service charges are paid in full.

Payment for past due balances and current semester fees is due on or before the first day of classes. Students who register in advance must pay their bills in full prior to the general registration period. Students who register after the initial registration period are required to make full payment by the close of business the following working day to avoid cancellation of their enrollment and loss of their classroom seats to other students.

Although the university regularly mails bills to students, it cannot assume responsibility for their receipt. Students are reminded that it is their responsibility to notify the university of any change in address, or to correct an address. If a student bill is not received on or before the beginning of each semester, it is the student's responsibility to obtain a copy of the bill, 1135 Lee Building, Monday through Friday, 8:30 a.m. to 4:30 p.m.

All checks or money orders should be made payable to the **University of Maryland** for the exact amount due. **Student name and student social security number should be written on the front side of the check.** University grants and scholarships will be posted to the student's account. However, the first bill mailed prior to the beginning of each semester may not include these deductions.

Students are urged to check their residence hall and dining service agreements for procedures for cancellation of reservations, and for deadlines for receiving refunds of deposits. Refunds cannot be made after these deadlines, even if the student decides not to attend the University of Maryland at College Park.

Students will incur a late payment fee in the event of failure to pay a balance on their student account by its due date. A late payment fee of $10.00 or 5%, whichever is higher, will be assessed in addition to payment for the total past due amount. An additional 1½% late fee will be charged monthly if the account is not settled.

Students who fail to pay the indebtedness during the semester in which delinquency occurs will be ineligible to preregister for subsequent semesters until the debt and the penalty fees are cleared.

In the event of actual registration for a subsequent semester by a delinquent student who has not settled his or her student account prior to that semester, such registration will be canceled and no credit will be earned for the semester.

The state has established, under legislative mandate, a Central Collections Unit (CCU) within the Department of Budget and Fiscal Planning. The university is required by state law to refer all delinquent accounts to the State Collections Unit. Please note that Maryland law allows the Central Collections Unit to intercept state income tax refunds for individuals with delinquent accounts, and that failure to make timely payment in response to CCU collection efforts may impair a credit rating.

All Accounts Due from Students, Faculty, Staff, Non-Students, etc., are included within these guidelines.

State Central Collection Unit costs incurred in collecting delinquent accounts will be charged to the student. The minimum collection fee is 17% plus attorney and/or court costs.

No degrees, diplomas, certificates, or transcripts of records will be issued to students who have not made satisfactory settlement of their accounts.

An Important Fee Notice: Although changes in fees and charges ordinarily will be announced in advance, the university reserves the right to make such changes without prior announcement.

Note: Additional information on Student Financial Obligations, Disclosure of Information, Delinquent Accounts, and Special Fees, can be found in the "Policy Statement" elsewhere in this catalog.

Payment of Fees

All checks, money orders, or postal notes should be made payable to the University of Maryland. The student's Social Security number must be written on the front of the check. VISA and Master-Card credit cards are accepted.

A. UNDERGRADUATE FEES

***Increases in board and lodging for 1993-94 are under consideration by the Board of Regents at the time of this printing.**

1. **Full-time Undergraduate Students 1993-94 Academic Year** (For billing purposes, a student is considered full-time if the number of credit hours enrolled is 9 or more.)

   a. Maryland Residents

	Total Academic Year Cost
Tuition	$2,564.00
Mandatory Fees (see Explanation of Fees below)	615.00
Board Contract (FY 92-93)*	
1) Point Plan	2,184.00
Lodging (FY 92-93)*	2,819.00
Telecommunications Fee	140.00

b. Residents of the District of Columbia, other states, and other countries:

	Total Academic Year Cost
Tuition	8,168.00
Mandatory Fees (see Explanation of Fees below)	615.00
Board Contract (FY92-93)	
1) Point Plan	2,184.00
Lodging (FY92-93)	2,819.00
Telecommunications Fee	140.00

2. Fees for Part-Time Undergraduate Students

Tuition (per credit hour)	$145.00
Mandatory Fees (per semester)	154.00

Note: The term "part-time undergraduate student" is interpreted to mean an undergraduate student taking eight semester credit hours or less. Students carrying nine semester hours or more are considered to be full-time and must pay the regular full-time fees.

B. GRADUATE FEES

1. Maryland Residents (fee per credit hour)	189.00
2. Residents of the District of Columbia, other states other countries (fee per credit hour)	324.00
3. Mandatory Fees (per semester)	
Full-time (9 or more credit hours per semester)	215.00
Part-time (8 or less credit hours per semester)	144.00

EXPLANATION OF FEES

Mandatory Fees

Academic Services Fee (Non-Refundable): The Academic Services Fee is charged to all students each semester.

Student Activities Fee (Refundable): Charged to all undergraduate students at the request of the Student Government Association. It is used in sponsoring various student activities, student publications, and cultural programs.

Auxiliary Facilities Fee (Refundable): Charged to all students. This fee is paid into a fund that is used for capital improvement, expansion, and construction of various campus facilities such as open recreation areas (tennis courts, basketball courts, etc.), transportation alternatives, and the Stamp Student Union. These projects are not funded or are funded only in part from other sources.

Athletic Fee (Refundable): Charged to all students for the support of the Department of Intercollegiate Athletics. All students are encouraged to participate in all of the activities of this department, or to attend the contests if they do not participate.

Student Health Fee (Refundable): Charged to all students for the support of the Health Service facility.

Shuttle Bus Fee (Refundable): Charged to all students for the support of the Shuttle Bus transportation system.

Stamp Student Union and Recreational Fee (Refundable): Charged to all students and is used to expand recreational facilities and Stamp Student Union services.

Building Recreation Fee (Refundable): Charged to all students specifically to support the construction and operation of Ritchie Coliseum and the new Campus Recreation Building, a multi-use facility that will include basketball and racquetball courts, indoor and outdoor pools, an indoor jogging track and multipurpose activity spaces.

Telecommunications Fee: Assessed to all students living in University Residence Halls.

Other Fees

Undergraduate Application Fee (Non-Refundable): $30.00. Charged to all new undergraduate students.

Graduate Application Fee (Non-Refundable): $40.00. Charged to all new graduate students.

Enrollment Confirmation Deposit (Non-Refundable). $100.00. All newly accepted undergraduate students who intend to matriculate in the fall or spring semester must submit a $100 fee which is credited to their tuition charges when they enroll. Should the student decide not to enroll for the specific semester of application, the $100 fee is forfeited, and cannot be used to offset any charges, including orientation charges, the student may incur.

Students admitted for the fall term by April 1 must submit this deposit by May 1; students admitted for the spring term prior to December 1 must submit this deposit within 30 days. Students admitted after December 1 for the spring term must submit this deposit within 14 days.

Pre-College Orientation Program Registration Fee: $88.00 (two-day program); $61.00 (one-day program); $32.00 (one parent), $64.00 (two parents).

Late Registration Fee. $20.00. All students are expected to complete their registration on the regular registration days. Those who do not complete their registration during the prescribed days must pay this fee.

Special Fee for students requiring additional preparation in mathematics (MATH 001 and MATH 002) per semester: $155.00. (Required of students whose curriculum calls for MATH 110 or 115 and who do not pass the qualifying examination for these courses.) This Special Math Fee is in addition to course charge. Students enrolled in this course and concurrently enrolled for six or more credit hours will be considered as full-time students for purposes of assessing fees. Students taking only MATH 001 pay for three credits plus $155.00. A three-credit course plus MATH 001 results in a charge for 6 credits plus $155.00. A full-time student pays full-time fees plus $155.00. This course does not carry credit towards any degree at the university but registration in MATH 001 or MATH 002 is counted in the calculation of semester credits for financial aid.

Cooperative Education in Liberal Arts, Business and Science (CO-OP 098-099) Per Semester: $60.00

Engineering COOP Program (ENCO 098-099) Per Semester: $60.00

Fees for Auditors and courses taken for audit are the same as those charged for courses taken for credit at both the undergraduate and graduate levels. Audited credit hours will be added to hours taken for credit to determine full-time or part-time status for fee assessment purposes. Special Students are assessed fees in accordance with the schedule for the comparable undergraduate or graduate classification.

Special Examination Fee (Credit-by-Exam): $30.00 per course for all undergraduates and full-time graduate students; credit-hour charge for part-time graduate students.

Parking Registration Fees: All students enrolled for classes on the College Park campus and who drive or park a vehicle anywhere or anytime on the campus must register to park on campus each academic year. For additional information, please refer to the entry for Department of Campus Parking elsewhere in this catalog.

Textbooks and Supplies: Textbooks and classroom supplies vary with the course pursued, but will average $550.00 per year (two semesters).

Service Charges for Dishonored Checks: Payable for each check which is returned unpaid by the drawee bank on initial presentation because of insufficient funds, payment stopped, post-dating, drawn against uncollected items, etc.

For checks up to $100.00: $10.00
For checks from $100.01 to $500.00: $25.00
For checks over $500.00: $50.00

When a check is returned unpaid, the student must redeem the check and pay any outstanding balance in the account within 10 days or late fees may be assessed and the account transferred to the State Central Collection Unit for legal follow-up. Additionally, a minimum 17% collection charge is added to the charges posted to the student's account at the time the transfer is made. When a check is returned unpaid due to an error made by the student's bank, the student must obtain a letter from the branch manager of the bank or a person of equivalent status admitting the error. This letter must be submitted to the Office of the Bursar to have the service charged waived.

Overdue Library Charges: For items from the library's main circulating collections, charges are 35 cents per day per item, and recalled item fines

are $1.50 per day. If an item is lost or mutilated, the borrower is charged the estimated cost of the item plus a processing fee to cover acquisition and cataloging costs. Different fine rates may apply for other library collections, such as reserve collections.

Maryland English Institute Fee: Semi-intensive, $1,566.00. Intensive, $3,131.00. Students enrolled with the Maryland English Institute pay this fee in support of the institute. Students enrolled in the semi-intensive program may also enroll for regular academic courses and pay the tuition and fees associated with those offerings. The program also offers non-credit courses: English Pronunciation, $265.00, and Workshop for Foreign Teaching Assistants, $530.00.

Property Damage Charge: Students will be charged for damage to property or equipment. Where responsibility for the damage can be fixed, the individual student will be billed for it; where responsibility cannot be fixed, the cost of repairing the damage or replacing equipment will be prorated among the individuals involved.

Late Payment Fee: One time fee of 5% of overdue amount, or $10.00, whichever is greater, plus an additional 1½% on subsequent billing.

Withdrawal or Refund Fees: Students compelled to leave the university at any time during the academic year should secure a form for withdrawal from the Records and Registration Office. The completed form and the semester Identification/Registration Card are to be submitted to the Records and Registration Office. Students will forfeit their right to refund if the withdrawal action described above is not adhered to. The effective date used in computing refunds is the date the withdrawal form is filed in the Records and Registration Office. Stop Payment on a check, failure to pay the semester bill, failure to attend classes, does not constitute withdrawal. A request for a refund must be processed by students with the Office of the Bursar; otherwise any credit on student accounts will automatically be carried over to the next semester. **Cancellation of Registration - Submitted to the Withdrawal/Reenrollment Office before the official first day of classes entitles students to full credit of semester tuition.**

Undergraduate students withdrawing from the university will be credited for tuition and fees (except the academic services fee) in accordance with the following schedule:

Prior to 1st day of classes	100%
1st 10 days of classes	80%
3rd week	60%
4th week	40%
5th week	20%
After 5th week	No Refund

Note: First semester freshmen who receive Title IV aid and who withdraw will receive a refund in accordance with federal regulations.

Prior to the first day of classes, if full-time undergraduate students drop a course or courses, thereby changing the total number of credits for which they are preregistered to eight or less, charges for the semester will be assessed on the basis of the per credit hour fee for part-time students. However, if students later add a course or courses thereby changing the total number of credits for which they are registered to nine or more, they will be billed for the difference between per credit hour fees paid and the general fees for full-time undergraduates.

If during the first five days of classes full-time undergraduates drop a course or courses thereby changing the total number of credits for which they are registered to eight or less, charges for the semester will be assessed on the basis of part-time charges plus 20% of the difference between the full-time fees and appropriate part-time charges. After the first five days of classes, there is no refund for changing from full-time to part-time status.

Students who register as part-time undergraduate students and **apply** for a refund for courses dropped during the first week of classes will be given a refund. No refund will be made for courses dropped thereafter.

No part of the charges for room and board is refundable except when students officially withdraw from the university or when they are given permission by the appropriate officials of the university to move from the residence halls and/or to discontinue dining hall privileges. In these cases, the room refund will be computed by multiplying the number of periods remaining by the pro rata weekly rate after adjusting for a service charge. Refunds to students having full board contracts will be calculated in a similar manner. No room and/or board refunds will be made after the fourteenth week of the semester. Students are reminded that reservations for room and board must be canceled by the date published in the residence hall and dining services agreement(s).

In computing refunds to students who have received the benefit of scholarships and loans from university funds, the computation will be made to return the maximum amount to the scholarship and loan accounts without loss to the university.

Military Call-Up

Students who must withdraw from the University as a result of being called for military duty should contact the Office of Records and Registration immediately, and should have available a copy of their orders. The University of Maryland at College Park has procedures to ensure an orderly process of separation for these students.

FINANCIAL AID

Office of Student Financial Aid
0102 Lee Building, 314-8313

Applying for financial aid, receiving financial aid, and keeping financial aid do not happen automatically. Students have to make it happen!

The Office of Student Financial Aid (OSFA) administers all types of federal, state, and institutional financial assistance programs, and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. The primary responsibility for financing attendance at the University of Maryland at College Park lies with students and families. Scholarships, grants, loans, and work-study positions are awarded on the basis of academic ability and/or financial need determined by a federal needs analysis system. It is OSFA's intent to provide assistance to students who might not otherwise be able to pursue college studies due to lack of finances.

Financial aid funds are limited; therefore, all new, readmitted, and returning students must follow these steps to receive priority consideration for financial aid:

1. Submit admissions applications and all necessary supporting documents to the Office of Admission by the appropriate deadlines.

2. Complete a Free Application for Federal Student Aid (FAFSA) after January 1. FAFSAs are available from OSFA. **A new FAFSA is required for each academic year of the student's enrollment.** The FAFSA replaces the FAF (Financial Aid Form), which was the required application form in previous years.

   New students should not wait to be admitted before filing the FAFSA. A financial aid application has no bearing on a student's admission application. However, students will not receive final consideration for aid until they are admitted to a degree program.

3. Mail the form to the Federal Student Aid Programs application processor no later than February 7, so that it is received by the processor by February 15. **Income for the previous year may be estimated initially,** and corrected later on the Student Aid Report.

Applications received after February 15 will be reviewed after on-time applications in order of receipt as long as funds are available. All transfer students and new graduate students must provide a financial aid transcript from each post-secondary school attended, **whether aid was received or not.**

General Regulations Applicable to All Forms of Aid

Full-Time Status. For most types of aid, students must attempt at least 12 credit hours through schedule adjustment each semester in order to receive the full financial aid award. Please refer to the standards of Satisfactory Academic Progress when considering dropping below 12 credit hours for any given semester.

Citizenship Status. Students must be United States citizens or eligible non-citizens in order to be eligible for federal, state, or university financial assistance.

Default/Owe Refund: To receive federal financial aid, you cannot be in default on an educational loan, nor can you owe any refund on a Pell Grant

or Supplemental Educational Opportunity Grant (SEOG) previously awarded at any post-secondary institution.

Degree Seeking: To receive federal financial aid, students must be working toward a degree or certificate. Students must be admitted to the university as "degree-seeking."

Satisfactory Progress: To receive federal financial aid, students must be making satisfactory progress toward a degree or certificate according to the Standards for Satisfactory Academic Progress published in the *Schedule of Classes*.

Financial Aid Transcripts. Any student who has attended another post-secondary institution must submit a financial aid transcript regardless of whether he or she received financial assistance.

Selective Service: To receive federal financial aid, students must be registered with Selective Service if they are male, at least 18 years old and born after December 31, 1959, unless they are not required to be registered. Compliance with the registration requirement will be verified by the federal government. The names of those students whose status cannot be verified will be referred to the U.S. Department of Justice for possible prosecution.

Receiving a Non-University Award: If a student receives assistance (scholarship or loan) from a non-university source, the university may reduce the financial aid awarded by the university. It is the student's responsibility to notify the Office of Student Financial Aid of all outside awards.

Change in Financial Situation: It is the student's responsibility to notify the Office of Student Financial Aid of any changes to his or her financial situation during the year.

Reapplication Requirement: No form of assistance is automatically renewed from year to year. All students requesting aid must reapply by submitting a new FAFSA annually. Such reapplication must indicate continued financial need as well as Satisfactory Academic Progress.

Award Policy: Financial aid is normally a combination of grants, loans, and employment. The financial aid "package" is determined by the availability of the various types of financial aid and the individual circumstances of the students. It is not necessary to make any special application for university grants. The Office of Student Financial Aid will determine awards which best fit the needs and qualifications of the candidates.

Estimating Educational Cost

A budget of average educational costs is used in determining how much aid a student is awarded during the academic year. The typical budget for an undergraduate at the University of Maryland at College Park for the 1993-94 academic year will be:

Dependent Student Living on Campus

Tuition and Fees in-state:	$3,179.00	out-of-state: $8,783.00
Room	2,819.00	
Board	2,184.00	
Incidentals	1,500.00	
Books	550.00	
TOTAL	$10,232.00	$15,838.00

Notes: 1. The above budget is subject to change for the 1993-94 academic year.
2. To determine the 1993-94 costs for tuition and fees, room, and board, please contact the Office of the Bursar.

Merit-Based Financial Assistance

Scholarships

Several scholarships are available to gifted students at UMCP. Two types of scholarships are available: those based solely on academic or creative talent (merit-based), and those based on financial need as well as academic or creative talent (need-based). The eligibility criteria for the different scholarships vary, and are listed below. For more information on these programs, students are encouraged to contact the office or department responsible for selecting the recipients.

Francis Scott Key Scholarship: The University of Maryland at College Park seeks to identify and select some of the brightest high school seniors in the nation to continue their education as Francis Scott Key Scholars. Students selected for this prestigious award will receive full financial support for four years, which covers tuition, room, board, and mandatory fees. They will also be admitted to the Honors Program, and will be afforded many other opportunities for participation in intellectual enrichment programs. Students may nominate themselves for this award, or high school guidance counselors may make Key Scholar nominations. Applicants must submit an admission application, official transcript, and SAT scores to the Undergraduate Admission Office by December 1 for the following academic year. Credentials of National Merit Finalists and Semifinalists are reviewed provided these students notify the Francis Scott Key Scholarship Committee of these academic honors. Contact the Office of Undergraduate Admission.

Benjamin Banneker Scholarship: The Banneker Scholarship is a four-year award given to exceptional African-American freshmen. New awards are made each year in the amount of full tuition, room, board, and mandatory fees. Recipients are automatically admitted to the Honors Program and are given priority for campus housing. Students may nominate themselves for this award, or high school guidance counselors may make Banneker Scholar nominations. Applicants must submit an admission application, official transcript, and SAT scores to the Undergraduate Admission Office by December 1 for the following academic year. Credentials of National Achievement Finalists and Semifinalists are reviewed provided these students notify the Banneker Scholarship Committee of these academic honors. Contact the Office of Undergraduate Admission.

Regents Scholars Program: The Regents Scholars Program recognizes the extraordinary achievement of outstanding freshmen students. New awards are made each year in the amount of full tuition, room, board, and mandatory fees. In addition, winners receive a $1000 stipend each academic year. Recipients are automatically admitted to the Honors Program. A select number of the top high school scholars in the nation will be interviewed for this most prestigious award. An admission application, official transcript, and SAT scores must be submitted to the Undergraduate Admission Office by December 1 to apply for the Regents Scholars Program for the following academic year. Students may nominate themselves, or high school guidance counselors may make Regents Scholar nominations. Contact the Office of Undergraduate Admission.

Honors Scholarship: University, Departmental, and College Honors students already attending UMCP may have an opportunity to apply for one of these $800 awards. Financial need is not a criterion for selection. Regents, Key and Banneker recipients are not eligible for Honors Scholarships. Scholarships are renewable, if the recipient submits a written application and continues to meet the criteria. To be eligible for consideration, students must have a minimum 3.2 grade point average and be achieving satisfactory progress toward the completion of requirements for an Honors citation or for a Departmental or College Honors Program. In addition, the applicants must submit an essay and a faculty recommendation. Contact the Honors Program.

Full University Scholarship: The Office of Student Financial Aid (OSFA) designed the Full University Scholarship Program to recruit financially needy, academically talented entering freshmen to UMCP. These four-year awards cover tuition, mandatory fees, room, and board. To be eligible for consideration, a student must be an incoming freshman with a grade point average of 3.5 or above, combined SAT scores of 1100 or higher, and demonstrate need as determined by OSFA via the Free Application for Federal Student Aid (FAFSA). Approximately fifteen full scholarships are awarded each year. Candidates will be selected from those admitted to UMCP by March 1. Contact the Office of Student Financial Aid.

UMCP Departmental Scholarships: Some Colleges and departments at UMCP offer a variety of merit scholarships. Most departmental scholarships require a student to have a minimum grade point average of 3.0 and be registered for a minimum of 12 credits per semester. For information regarding departmental scholarships, please contact the appropriate college or department of study.

Maryland State Scholarships: The Maryland State Scholarship Administration (MSSA), located in Annapolis, awards both need- and merit-based scholarships to Maryland residents. There are currently sixteen different scholarships available, including the General State Scholarship, the Senatorial Scholarship, the House of Delegates Scholarship, and the Distinguished Scholar Award. You may obtain more information about these and other awards by calling MSSA at (410)974-5370. All Maryland

residents are expected to apply for State Scholarship assistance. Initial application for many of the awards is made through the Free Application for Federal Student Aid (FAFSA) and Maryland Financial Aid Form (FAF). Please note that filing just the FAFSA is not sufficient to apply for Maryland State Scholarships. The application deadline for most programs is March 1. Maryland FAF/FAFSAs are available from MSSA and from the UMCP Office of Student Financial Aid.

Scholarships from Other States: Several states have reciprocal agreements with the State of Maryland. Students who are residents of these states may receive funds for study in eligible post-secondary institutions in Maryland. Interested students should contact their state scholarship agencies for information.

Scholarship Searches: A broad range of scholarships is available from private sources. Usually, these awards are not as well publicized as the state and university programs. Therefore, students should conduct a scholarship search to locate such sources. UMCP offers two services to students to aid them in their searches. **The Office of Student Financial Aid Scholarship Match** is a free service available to students with an overall grade point average of 3.0 or above. This personalized program matches donors with potential scholarship recipients. The applications are maintained in an active file for the entire academic year and must be renewed annually. Applications become available at the Office of Student Financial Aid in January for the upcoming academic year. **CASHE** (College Aid Sources for Higher Education) is a computerized financial aid and scholarship search through which students may learn about possible sources of financial support from thousands of resources listed. The program matches the student with resources that are keyed to particular characteristics (gender, ethnic background, major, geographic region, etc). When students receive their list, it is their responsibility to contact the sources provided for additional information and/or applications. The service is available to UMCP students and affiliates for $5 and to all others for $15. For applications for these two search services, contact the Office of Student Financial Aid at (301)314-8313.

Need-Based Financial Assistance

Grants

The Office of Student Financial Aid administers several grant programs for undergraduate students. Awards are made based on financial need as determined by the FAFSA. Grants do not have to be repaid.

Federal Pell Grant: This grant provides a "foundation" of financial aid, to which aid from other sources may be added. Only first-time undergraduate students (those who have not already completed a bachelor's degree) may receive a Federal Pell Grant. All undergraduates will be considered for this grant regardless of when their applications were received. Students may receive the Federal Pell Grant for less than full-time attendance, although the award will be pro-rated based on the number of credits attempted. Awards range from $400 to $2,300.

Federal Supplemental Educational Opportunity Grant (FSEOG): The FSEOG is awarded to full-time undergraduates with exceptional need. Priority is given to Federal Pell Grant recipients. To be considered for FSEOG, you must meet OSFA's priority application deadline of February 15. Awards range from $200 to $600 per year.

Institutional Grants: UMCP awards grant money to full-time students who demonstrate financial need and who meet OSFA's priority application deadline of February 15. There are three funds from which money is awarded, and OSFA selects recipients for the awards based on which grant best fits their qualifications. The **Frederick Douglass Grant** is awarded to African-American undergraduates. The **University Grant** is awarded to undergraduates who have a grade point average (GPA) of 3.0 or higher. The **UMCP Grant** may be awarded to any undergraduate. Award amounts from these three programs range from $100 to $2,000.

Self-Help

Financial aid may be awarded in the form of an opportunity to obtain assistance, rather than as an outright monetary gift. Such aid programs are called "self-help," and take the form of employment programs and student loans. Most of these programs are awarded based on need as determined by the FAFSA.

Federal Work-Study: The Federal Work-Study (FWS) Program provides students the opportunity to earn money to meet their educational and personal expenses through the semester. Money earned from a FWS job does not have to be paid back. To be considered for FWS, students must meet OSFA's priority application deadline of February 15. This award is need-based, and may range from $800 to $2,000. Pay rates depend on the level of complexity of the work, but will be at least the federal minimum wage. FWS employees receive a paycheck every other week for the hours worked, like all university employees. Most FWS jobs are on campus, though there are opportunities for FWS students to work off campus at private non-profit organizations, through the Community Service Learning program. The number of hours students may work is limited to twenty per week while school is in session, or forty per week during vacations and summer.

Workships: Dining Hall Workships may be awarded to on-campus students with financial need who meet OSFA's priority application deadline of February 15. Through a workship, funds are advanced to the student at the beginning of the semester when he or she completes a contract stating the number of hours to be worked during that semester. This program differs from Federal Work-Study in that the student receives all the "wages" up front to help cover the university bill, and so does not receive bi-weekly paychecks. Dining Hall workships may be awarded directly by Dining Services, or through OSFA. Students should either contact Dining Services at 314-8052, or follow OSFA's standard application procedure.

Federal Perkins Loan: This is a low interest rate (5 percent) loan for students with exceptional financial need who attend at least three-quarter time. This is a loan borrowed from the school, and it must be paid back. To be eligible, students must meet OSFA's priority application deadline of February 15. The amount of the award will depend upon the student's need, and may range from $100 to $1,200. New borrowers (those who first receive a Federal Perkins Loan after July 1, 1988) have a grace penod of 9 months after graduating or leaving school before they must begin repaying their Federal Perkins Loans. Interest will begin accruing at the time of repayment. Students are not responsible for paying the interest on the loan while they are attending school.

Federal Stafford Loan: This is a low interest rate loan for students who attend at least half-time. Application is made first through the school financial aid office via the FAFSA, then through the lending institution of the student's choice (bank or credit union). Eligibility for this loan is based on need, not credit history. This loan is borrowed by the **student**, and must be paid back by the student.

There are two types of Federal Stafford Loans, **subsidized** and **unsubsidized**. The student must demonstrate financial need to receive a subsidized loan, and he or she is not required to pay the interest on it while in school. Students who do not demonstrate financial need, or who do not demonstrate sufficient need to borrow a full subsidized loan, may borrow a Federal Unsubsidized Stafford Loan. If a student borrows an unsubsidized loan, he or she will be responsible for paying the interest which accrues during school attendance. The FAFSA must be completed by all students who wish to apply for either type of Federal Stafford Loan. The interest rate for new borrowers who take out their first Federal Stafford Loan after October 1, 1992 is variable, capped at 9%, and will be 6.94% through June 20, 1993. For Federal Stafford borrowers who took out their first loan between July 1, 1988 and October 1, 1992, the interest rate is 8 percent for the first four years of repayment, and 10 percent thereafter up to the maximum of ten years total. For most borrowers, repayment of the principal will begin at the end of the 6 month grace period after graduation or dropping below half-time status.

Maximum loan amounts are as follows: $2,625 per year for first-year undergraduates, $3,500 per year for second-year undergraduates, and $5,500 per year for third-, fourth-, or fifth-year undergraduates. If the student does not demonstrate need to borrow the maximum for his or her year in school through the subsidized Federal Stafford Loan, he or she may borrow the difference in a Federal Unsubsidized Stafford Loan. For instance, if you are a junior, and you demonstrate need for a $3,000 Federal Stafford Loan, you may borrow up to $2,500 more in an unsubsidized loan if you wish. The maximum borrowing limit for undergraduates is $23,000.

Federal SLS (Supplemental Loan For Students): This is a loan for independent undergraduate students who do not demonstrate financial need, or who have remaining need after borrowing their full Federal Stafford Loan eligibility. Since eligibility for the Federal Stafford program must be determined first, students must complete the regular application process, including filing the FAFSA, to be considered for the Federal SLS. Like the Federal Stafford Loan, the Federal SLS is borrowed through the lender of choice, though application must first be made through the school. Students must attend at least half-time to receive a Federal SLS

The Federal SLS is not a subsidized loan; therefore, the student will be responsible for paying the interest which accrues on the loan while in school. The interest rate for the Federal SLS is variable, capped at 11%, and will be 7.36% through June 30, 1993. Repayment of this loan begins immediately upon receipt of the last disbursement for the academic year, unless the student makes arrangements with the lender to defer payment of the principal and/or interest. The maximum loan amounts are as follows: $4,000 per year for first- and second-year undergraduates, and $5,000 per year for third-, fourth-, and fifth-year undergraduates. Undergraduate students may borrow up to a maximum of $23,000.

Federal PLUS (Parent Loans For Undergraduate Students): This is a non-need-based loan which parents may borrow to help them pay for their dependent children's education. The Federal PLUS enables parents to borrow the full yearly cost of the student's education (as determined by the school) minus all other financial aid. There is no yearly or cumulative borrowing limit. Because this loan is not need-based, submission of the FAFSA is not required to apply. However, the loan application must first be submitted to the school for calculation of the amount which the parent may borrow for the student in that year. Final approval of the loan by the parents' chosen lender will be based on credit history. The interest rate for the Federal PLUS is variable, capped at 10%, and will be 7.36% through June 30, 1993. Repayment of the loan begins immediately.

Additional Resources

Job Referral Service

The Job Referral Service, 3120 Hornbake Building, serves free of charge as an information clearinghouse for students seeking part-time work and for employers seeking help. Call 314-8324 for further information. Many jobs, including full-time summer employment opportunities, are available both on and off campus. All students, even those who do not receive Federal Work-Study, may use the Job Referral Service.

For in-depth instructions, directions, and answers to financial aid questions and concerns, please stop by the Office of Student Financial Aid Public Inquiry Counter to pick up Financial Aid Fact Sheets on a variety of topics, ranging from application procedures to specific aid programs.

Stop by the Office of Student Financial Aid Public Inquiry Counter to pick up Financial Aid Fact Sheets on a variety of topics, ranging from application procedures to specific aid programs.

Satisfactory Academic Progress for Financial Aid

All students who receive federal, state, and/or institutional financial aid are required to comply with standards of satisfactory academic progress as defined by the Office of Student Financial Aid. The standards are published in the *Schedule of Classes*, and a copy of the policy may be obtained from OSFA.

Notes

CHAPTER 3

CAMPUS ADMINISTRATION, RESOURCES, AND STUDENT SERVICES

CAMPUS ADMINISTRATION

Office of the President

1101 Main Administration, 405-5803

The President is the chief executive officer of the University of Maryland at College Park. Four Vice Presidents, who report to the President, manage different divisions of the campus administration. The Office of Human Relations Programs, the Campus Senate, the Department of Intercollegiate Athletics, and the Maryland Fire and Rescue Institute report to the Office of the President.

Academic Affairs

1119 Main Administration, 405-5252

The Office of the Vice President for Academic Affairs and Provost provides leadership to the academic community and coordinates the academic life of all students at College Park. The Vice President and Provost oversees the development of programs of study; the development, review, and implementation of academic policies and regulations; and is responsible for ensuring the integrity and continuity of all curricula in the context of the institutional mission and the additional goals of promoting diversity and quality. This Office also acts as a liaison within the academic community and between the academic and other communities and cooperates with other campus units in strategic and long-range planning.

Administrative Affairs

1132 Main Administration, 405-1108

The Office of the Vice President for Administrative Affairs is responsible for the effective management of the physical, fiscal, and staff support resources of the institution. It also provides campus safety and security, materials management, administrative computing, and other necessary support services. Of particular interest to students are the community awareness and security programs offered by the University Police and the information and assistance services provided by the bursar for concerns of students regarding university billings.

Institutional Advancement

1114 Main Administration, 405-4680

The Office of the Vice President for Institutional Advancement conducts a variety of programs to develop greater understanding and support for the University of Maryland at College Park among its many publics. Units of this office include Development, Public Information, University Publications, Special Events, and Alumni Programs.. The Office of Institutional Advancement is responsible for all official campus-wide advancement programs such as fund raising, alumni affairs, production of official campus publications, films and video presentations, media relations, and management of major campus events.

Student Affairs

2108 Mitchell Building, 314-8428

The Office of the Vice President for Student Affairs provides administrative leadership for the development of programs and services that help students clarify and fulfill their needs and objectives, and that contribute to a constructive campus learning environment. The office serves as a general point of contact for students and their families regarding student life. It coordinates student affairs efforts with the academic colleges, the graduate school, and other administrative units in the areas of student conduct, due process and student-related legal matters. The office maintains liaison with the university chaplains, the Student Government Association (SGA), and the Graduate Student Association (GSA), and also advises Omicron Delta Kappa National Leadership Honor Society.

Administrative Dean for Undergraduate Studies

2130 Mitchell Building, 405-9363

The Office of the Dean for Undergraduate Studies:

- Serves as campus advocate for excellence in undergraduate education;
- Helps students take full advantage of the University's many learning opportunities;
- Promotes an academic environment that welcomes and celebrates the cultural richness of our community;
- Supports and rewards faculty for excellence as teachers and mentors; and
- Strives with faculty and staff to achieve the College Park commitment to delivering the broad, challenging, and enriching education required of all citizens in a democracy.

In fulfilling its mission, Undergraduate Studies provides a wide range of academic support services for all undergraduate students, faculty and staff. All of its units work toward enhancing the undergraduate experience at College Park. The Office coordinates the interpretation and implementation of academic regulations and requirements with the Vice President for Academic Affairs, and cooperates with academic deans and department chairs to assure the overall organization, continuity, and effectiveness of the undergraduate curriculum.

Undergraduate Studies includes:
Academic Achievement Programs
Career Center
Center for Teaching Excellence
CLEP and Advanced Placement credit information
Credit by examination
Distinguished Scholar-Teacher Program
Division of Letters and Sciences
Educational Talent Search
General Education requirements (CORE)
Health professions advising
Individual Studies
Internships and cooperative education (Experimental Learning Programs)
University Honors Program
Upward Bound

The Center for Teaching Excellence

2130 Mitchell Building

The Center for Teaching Excellence supports campus-wide efforts to enhance undergraduate education. The Center offers tangible assistance to individual faculty and TA's, as well as to the departments and colleges in which they work. It provides: Workshops and Conversations related to teaching and learning issues; assistance in organizing and implementing faculty teaching workshops, TA training activities, and evaluation/support strategies related to improving teaching; consultation on particular areas of concern in teaching and learning, research into teaching practice, and implementation of innovative teaching-learning strategies.

The Center also facilitates the undergraduate Teaching Assistants program, the annual Celebrating Teachers awards for outstanding teaching, and the Center for Teaching Excellence Fellows program.

For more information please call Dr. Jim Greenberg, the Center Project Coordinator, at 405-3154 or 405-9363.

Distinguished Scholar-Teacher Program

2130 Mitchell Building

Distinguished Scholar-Teacher (DST) is the highest recognition this campus gives to faculty. Faculty are selected for this honor based on both their intellectual achievements and on their abilities to translate their scholarship into successful classroom teaching. The DST Program brings the insights of these faculty to a larger audience by allowing them to teach a special Honors course and to give a public lecture during their year as DSTs.

For information, please contact Undergraduate Studies, (301) 405-9355, Bonnie Oh, Asst. Dean

Administrative Dean for Summer and Special Programs

2103 Reckord Armory, 405-6551

The summer school consists of two six-week sessions and numerous additional courses of various length from three to eight weeks. Newly admitted students may begin their studies during the summer rather than the following fall term. By taking advantage of this opportunity and continuing to attend summer sessions, completion of a baccalaureate degree might be shortened by a year or more.

Attendance during the summer sessions eases the transition from high school to college. Classes are generally smaller, meet every day, and faculty contact is more frequent. Courses offered during the summer are the same in content and instruction as those offered during the academic year.

The summer cultural and recreational programs are an important part of "Summer at Maryland." The Maryland Summer Institute for the Creative and Performing Arts offers a series of programs in art, dance, drama, film and music, and presents world-class artists on the campus.

Facilities for most sports and an intramural program in several team and individual sports are available. For additional information, write for a Summer Programs catalog: Administrative Dean for Summer Programs, The University of Maryland, College Park, MD 20742.

CAMPUS RESOURCES AND SERVICES

Academic Achievement Programs

0111 Chemistry Building, 405-4736

Intensive Educational Development: Provides comprehensive, structured support services to first- and second-year students currently enrolled at the University of Maryland at College Park, whose academic profile would suggest that they might be at retention risk without this support. IED also provides as-needed academic support and counseling services to upper-level IED students. Support services include math and English review, tutoring, and study skills enhancement instruction.

Prospective students attempting to gain admission to the University by participating in this program are required to attend the six-week Summer Transitional Program, designed to develop, expand, and improve English, math, and study skills, assist in the transition from high school to the University, and both challenge and evaluate each student's potential for success at this institution.

Student Support Services: A U.S. Department of Education grant-supported program, which provides academic advisement (first and second years), counseling, tutoring, and skill enhancement instruction to low-income and first-generation college students. SSS also assists participants in identifying and acquiring significant financial aid to meet a student's full unmet need.

Ronald E. McNair Post-baccalaureate Achievement: A U.S. Department of Education grant-supported program, which provides low-income and first-generation college juniors and seniors with skill enhancement, counseling, tutoring, academic advisement, mentoring, and scholarly and research experience designed to prepare students for graduate education. The six-week summer component includes a stipend of approximately $2,000.

Academic Support for Returning Athletes: Provides continuing educational opportunities and support to former basketball and football athletes who were in good academic standing, had attained junior or senior level status; had exhausted athletic eligibility, and left the University without obtaining the undergraduate degree. The program enables students to return to the classroom and complete degree requirements.

Academic Advising

Academic advising is an essential part of an undergraduate's educational experiences.

Advantages of Advising: Students can expect advising to help them:

(1) better understand their purposes for attending the university;
(2) develop insights about personal behaviors that promote improved adjustment to the campus setting;
(3) increase their awareness of academic programs and course offerings at the University of Maryland at College Park;
(4) more frequently explore opportunities both inside and outside the classroom for intellectual and cultural development;
(5) acquire decision-making skills that can accelerate academic and career planning;
(6) more realistically evaluate their academic progress and its relationships to successful planning; and
(7) understand the relationship between academic success and planning skills.

Required Advising

Students enrolled in certain majors are required to see advisors before each registration. For many students, most, if not all, advising is not mandatory. However, the university expects students to see an advisor under certain circumstances:

Students in Their First Year of Registration at the University of Maryland at College Park

Students Receiving an Academic Warning (Mandatory)

Students Dismissed From the University (Mandatory)

Students Who Withdraw From the University (Mandatory)

Students Nearing Graduation

Students With 70-80 Credits: Senior Audit

Finding An Advisor

Undergraduate students are encouraged to use the many advising opportunities available to them. At both academic levels—college and department—at least one person has been designated to coordinate advising. A list of these persons, providing name, room number, and telephone extension is published each semester in the Schedule of Classes. Students who are unable to locate an advisor or who have questions about campus advising programs should visit or call the Division of Letters and Sciences, 1117 Hornbake Library, 314-8418.

Division of Letters and Sciences

Division of Letters and Sciences: 1117 Hornbake Library, 314-8418
Health Professions Advising: 405-2793
Credit-By-Exam/Advanced Placement/CLEP: 314-8418
Law Advising: 314-8418

Many university students decide to explore their academic interests before selecting a major.

Working with a staff of trained academic advisors in the Division of Letters and Sciences, these students are able to explore majors, choose and schedule courses, plan their academic programs, and learn about campus-wide resources available for solving problems they encounter. To assist students in exploring the CORE general education program, and in choosing courses and majors, the Division of Letters and Sciences sponsors the annual "Celebrate Learning" series, which introduces talented faculty, teachers and researchers from all areas of the curriculum.

the Division of Letters and Sciences staff works closely with the Career Center, the Counseling Center, various tutoring services, and advisors from academic departments and programs across campus to provide a coordinated advising network which helps students design their personal academic plans, as follows:

Choosing a Major: Providing information and referral to the wide range of academic programs available to students and coordinating with services offered by the Career Development Center, the Counseling Center, and the academic colleges and departments. The Division of Letters and Sciences helps students select majors which best meet their interests and further their career goals.

Pre-professional Advising: Offering pre-professional advising for students interested in law and the health professions. For further information on pre-professional advising, consult the entry on Campus-wide Programs in this catalog, or call 314-8418 or 405-2793.

Information and Referral: Maintaining information about academic programs and requirements and academic support services at the University of Maryland at College Park. Workshops designed to help students select majors and courses are offered regularly during the pre-registration period.

Troubleshooting: Helping individual students identify and solve specific advising problems and difficulties with administrative procedures, such as transfer credit evaluation, schedule revisions, changing majors, errors in academic records, etc.

Policy Interpretation: Keeping students and advisors informed about new academic policies and helping to interpret existing policies and practices and determine under what conditions exceptions might be granted.

Credit-by-Exam, CLEP, Advanced Placement (314-8418): Administering the campus-wide program of credit-by-examination and coordinating information about CLEP and advanced placement credits.

General Assistance: Giving general assistance to students who have not been assigned to a permanent advising home, such as students visiting this campus from other institutions.

Admission

Ground Level, Mitchell Building, 314-8385

The services offered by the Office of Undergraduate Admission are designed to meet the individual needs of prospective applicants. The office provides general information about the University of Maryland at College Park through brochures, letters, group information sessions, and campus tours. It also evaluates the applications of both freshman and transfer students in order to select qualified students. The Office of Reenrollment reviews all applications for readmission and reinstatement. For more information, see the chapter on Undergraduate Admission in this catalog.

Campus Programs

1135 Stamp Student Union, 314-7174

The Office of Campus Programs is a major resource for students wishing to become involved in co-curricular activities at the University of Maryland at College Park. Campus Programs provides advisement, consultation, and programming assistance to student organizations for the primary purpose of enhancing the educational growth of groups' leaders, members, and associates. Efforts focus on encouraging involvement of all students in campus life activities, establishing various programs for the benefit of the university community, and providing numerous leadership development opportunities. Specific efforts include:

Student Organizations. Campus Programs registers all student organizations at the University and makes available a directory of more than 300 groups. The office also arranges reservations for these organizations when they wish to use campus facilities for their programs and events. The office sponsors a number of programs to help individual students participate in these groups and their activities.

Organization Advisement. Major student groups such as the Student Government Association, the Homecoming Committee, and SEE Productions receive direct advisement from the staff of Campus Programs. Other student groups can also obtain help from the trained staff merely by requesting it.

Leadership Development. Campus Programs offers a wide range of training experiences in interpersonal and organizational development skills ranging in format from half-day seminars to weekend workshops to full semester courses earning academic credit.

Fraternities and Sororities. Social fraternities and sororities are advised and supported by Campus Programs, individually and through the three "umbrella" organizations: the Intrafraternity Council, the Pan-Hellenic Council, and the Pan-hellenic Association.

Campus Senate

1100 Marie Mount Hall, 405-5805

The Campus Senate, an integral part of the institution's system of governance, is unique in that it has representation from all segments of the campus community: administrators, staff, faculty, and undergraduate and graduate students. Participation in the senate or any of its fourteen standing committees is an honor and a responsibility.

The full senate meets eight times a year to consider matters of concern to the institution including academic issues, university policies, plans, facilities, and the welfare of faculty, staff, and students. The senate advises the president, the chancellor, or the Board of Regents as it deems appropriate. To become a student senator, students must be elected through their college or school, or the Office of Undergraduate Studies. Elections are held every year during the spring semester. Students are also encouraged to participate in a series of senate standing committees, such as Student Affairs and Human Relations. These committees draw membership from the campus community at large and cover every aspect of campus life and function. Details about the election and appointment processes are available from the Campus Senate office.

Career Center

3121 Hornbake Library, South Wing, 314-7225

The Career Center supports and assists students from all departments in early and systematic consideration of career questions and concerns, such as: "How are my interests, skills and values related to career fields and University of Maryland at College Park majors?" "What are effective strategies in securing a job or selecting a graduate school?" "How do I prepare now for a rewarding career in the future?" Career Center programs and services are designed to be used most effectively by students beginning in the freshman year and continuing through the college years. Students who begin to plan their education and career early in their college experience will be in the best position to direct themselves toward meaningful and rewarding careers upon graduation.

Programs and Services

Career Resource Center. The Career Resource Center provides information and guidance for career exploration, decision-making, graduate school planning and job seeking. The center's holdings include comprehensive reference material on all aspects of work, education, and career exploration, as well as listings of job vacancies, employer and graduate school information, job seeking guides, videotapes, employer information, and the DISCOVER computerized career information system.

Career Counselors. Career counselors assist students in identifying careers and majors suited to their interests and skills, and in developing the skills needed for their job search, graduate training, or career change. Counselors are available by appointment or during walk-in hours (for brief consultations).

Experiential Learning Programs

0119 Hornbake Library, South Wing, 405-3956

Experiential Learning Programs (ELP) provides a number of learning opportunities that encourage students to test classroom learning in work situations, explore career possibilities by direct participation, learn about the culture and people of an organization, geographic area, or academic environment, and enhance their personal development through work and academic travel. The Programs include the following:

National Student Exchange (NSE). NSE provides students with the opportunity to experience educational travel, curricular development, cultural enrichment, and personal growth. Students may attend, for one semester or an academic year, campuses located throughout the continental U.S. and in Hawaii, the Virgin Islands, Alaska, Guam and Puerto Rico. Students select schools that provide a particular academic focus, unique cultural environment, or different geographic location. While on exchange, Maryland students pay tuition and mandatory fees to UMCP, and room and board to the host institution. March 1st is the deadline for application for the next academic year. Students must have a 2.5 cumulative GPA at the time of application and exchange. Students must earn their final thirty hours of credits at College Park.

Internships. Internships are paid or unpaid work experiences with specific educational objectives for which students may be granted academic credit. Internships are available for most majors. ELP maintains current files on over 1000 private businesses and government agencies which are actively seeking interns. Workshops are offered to assist students in the process of locating internships. Finding a rewarding internship takes time, so students should start looking early in the semester before they would like to begin work.

Cooperative Education for Liberal Arts, Business, and the Sciences (Co-op). Co-op allows students to learn more about their field of study, gain paid, professional-level work experience that is related to their major, and earn a competitive salary. To be eligible, students must have completed thirty-six semester hours, twelve UMCP credits the semester before enrolling in the co-op program, and maintain a minimum 2.0 cumulative GPA. Students may work either full-time or part-time. The minimum work commitment is equal to six months of full-time work. Interested students must attend two required information and preparation sessions. Students should apply the semester before they wish to begin working. See the College of Engineering entry in this catalog for details about the Engineering Co-op Program.

Experimental Learning Course—Courses Numbered 386. Some internships and cooperative education placements may be appropriate for academic credit. The University uses the course number 386 to denote experiential learning credit. The Campus Senate has established the following regulations governing credit for 386:

- To be eligible a student must have earned 56 credits, including 12 at UMCP and 3 in the department in which credit is to be awarded.
- The course may be taken by permission of a faculty member, if it is a departmental option and in accordance with departmental internship policies.
- The course may be taken for a letter grade or pass/fail.
- 386 is a variable credit course. Students may earn from 3 to 6 credits unless otherwise stipulated by departmental policies.
- The number of credits earned depends on the number of hours worked at the internship site plus time spent on completing projects as stipulated in the Learning Proposal.
- 386 may be taken only once in any given department.
- 386 may be taken in only one department per semester.
- 386 may be taken for a maximum of 12 credits as part of an undergraduate program.

In order to earn credit, students must secure a faculty sponsor and complete a learning proposal. The sponsor must be a faculty member in the department in which the student wishes to earn credit. That department must be logically related to the internship experience. The Learning Proposal is a one-page contract that spells out the nature of the internship, specific responsibilities, supervision, method of evaluation, learning objectives and contact with faculty sponsor. The Learning Proposal must be signed by the student, the on-site supervisor and the faculty sponsor and be submitted to ELP for approval. **Students will not be permitted to register for 386 without this approval.**

Courses:
EDCP 108D—College and Career Advancement. Career Planning and Decision-Making. Feeling confused about choosing a major? This course will help you identify your career interests, skills, and values and how they relate to UMCP majors. Recommended for freshmen and sophomores. 1 cr.

EDCP 108J—College and Career Advancement. Job Search Strategies. This course will help you learn special skills needed to be successful in today's job market. Topics include: networking, interviewing, resume writing, and planning for your career future. Junior or Senior standing required. 1 cr.

Credentials Service. Credentials are a student's permanent professional record including letters of recommendation, evaluations, and course and resume information. Any undergraduate or graduate student may develop a file in preparation for graduation. Credential files are most helpful to students applying to graduate and professional schools (law, medicine, dentistry, etc.), and those seeking jobs in education, government, and not-for-profit organizations. All senior Education majors are required to establish a credential file for employment purposes.

Workshops and Special Events. Group programs each semester include: Choosing a Major, Interviewing, Resume Writing, Orientation to the On-Campus Recruiting Program, Job Search Strategies, and Applying to Graduate School. Special events that bring students and employer representatives together for information exchange and employment contact include: career panels, a Graduate/Professional School Fair, and career/job fairs.

On-Campus Recruiting Program (OCRP). Each year over 500 employers come to campus to interview interested students who are within two semesters of graduation. Job opportunities are concentrated in the areas of management training, engineering, computer science, accounting and financial operations, and scientific research and applications. The Baltimore-Washington corridor offers additional opportunities in a variety of government and specialized careers. Employers also have the opportunity to receive information from those graduating seniors who register for and participate in the Candidate Referral database service. Job searches should be initiated at least one year in advance of graduation.

Placement Manual and Career Guide. The Placement Manual is designed as a special resource guide for students during their job searches. Contents include resume writing guides, successful interviewing techniques, and job search strategies that work. A preliminary list of employers participating in the On-Campus Recruiting Program is featured. The Career Guide is intended to assist students in clarifying career goals and choosing a major. Contents included a step-by-step guide to exploring your career options and identifying career goals through various exercises involving how your interests and values relate to career options. Both the Placement Manual and the Career Guide are available to students free of charge.

Community Service Programs

1195 Stamp Student Union, 314-CARE

Community Service Programs (CSP) provides students, faculty, and staff with information and resources about community service and volunteer opportunities. A listing of over 200 opportunities for individual or group involvement in short-term, long-term and one-time-only activities is available in the office. CSP can also help students identify student organizations involved with community service. Handouts to assist students in selecting, pursuing and reflecting upon their service experience and a monthly newsletter listing current opportunities are also available.

Commuter Affairs

1195 Stamp Student Union, 314-5274

The Office of Commuter Affairs has established services to work on behalf of, with, and for the commuter students at the University of Maryland at College Park.

Carpooling. Students interested in forming a carpool can join the individual match-up program by filling out an application at the Office of Commuter Affairs or calling 1-800-492-3757. Students who carpool with three or more people may apply at OCA for Priority Parking and receive a parking permit for a faculty/staff lot.

Off-Campus Housing Service (314-3645) maintains up-to-date computerized listings of rooms, apartments, and houses (both vacant and to share). Area maps, apartment directories, and brochures concerning topics of interest to commuter students are available in the office.

Settling In. Commuter Connection, a newspaper mailed to the homes of commuters twice a semester, contains helpful information on campus life. UMaps, a unique guide to the institution, helping students match their own interests with courses, careers, and opportunities for involvement on campus, are available in the Office of Commuter Affairs. Through the S.H.O.W (Students

Helping, Orienting and Welcoming) Program (314-7250), new students are matched upon request with upperclass students to learn about campus life. Meet other commuters at "Good Morning, Commuters!" for coffee and campus information on Wednesday mornings at the Union.

Shuttle-UM (314-2255) provides bus service for students, faculty and staff. The bus system offers daytime commuter routes, evening security routes, evening security call-a-ride, and transit service for disabled faculty, staff or students. Schedules are available at the Stamp Student Union Information Desk, the Office of Commuter Affairs, and the Shuttle-UM Office.

Counseling Center

Shoemaker Building, 314-7651

The Counseling Center provides comprehensive psychological and counseling services to meet the mental health and developmental needs of students. Records kept as part of providing counseling services are confidential, and are not part of the university's educational records. The Counseling Center is open Monday through Thursday, 8:30 a.m. to 9:00 p.m. and Friday, 8:30 a.m. to 4:00 p.m.

In order to help students overcome barriers to their learning and development, the Counseling Center provides the following special services and programs:

Counseling Service (314-7651). Psychologists provide professional, individual and group counseling services for students with social-emotional and educational-vocational concerns. Counseling is available to overcome depression, career indecisiveness, anxiety, loneliness and other problems experienced by students. Workshops ranging from developing assertiveness and self-esteem to managing stress are offered. A 3:00 p.m. Minority Student Walk-in Hour is held daily. The center also provides a series of tape-recorded interviews with College Park academic department heads about courses and career options in those fields.

Learning Assistance Service (314-7693). Educational specialists offer individual and group sessions for improving academic skills such as reading, writing, listening, notetaking, and learning mathematics and science material. Workshops cover such topics as study skills, time management, math skills, exam anxiety, and English as a second language.

Parent Consultation and Child Evaluation Service (314-7673). Professional help is available through consultation, testing, and counseling for youngsters ages 5 through 14, and families.

Testing, Research, and Data Processing Unit (314-7688). National testing programs such as CLEP, GRE, LSAT, MCAT, GMAT and Miller Analogies, as well as testing for counseling purposes including vocational assessment are administered through this office. Staff members produce a wide variety of research reports on characteristics of students and the campus environment.

Disability Support Service (314-7682, TDD 314-7683). Services for disabled students include assistance in locating interpreters for hearing impaired students, readers for visually impaired students, and access guides to various buildings and facilities on campus. Services must be arranged in advance. New students are urged to contact the office as soon as possible.

The University of Maryland at College Park is committed to making reasonable accommodations that will permit students with specific learning disabilities the opportunity to develop and demonstrate proficiency in the required subject matter. As the guiding principle was stated by the Campus Senate in 1989, "consideration should always be to accommodate the student's learning differences, not to water down scholastic requirements."

Responsibilities of Students with Learning Disabilities. Students bear the primary responsibility for identifying their disabilities and for making the necessary adjustments to the learning environment. Students with learning disabilities are responsible for promptly communicating their needs for appropriate accommodations to the Office of Disability Support Service (DSS). Students may be required to obtain official documentation, testing and evaluation because determination of appropriate accommodation is based on the specific nature of the disability in individual cases. Some accommodations are within the authority of DSS and/or the faculty member(s) involved. However, written requests for adjustments to a curriculum on the basis of learning disability must be made to the Dean for Undergraduate Studies in the case of general education requirements and to the Dean of the College or School in which the student is enrolled in a major program in the case of college and departmental curriculum requirements. The request(s) must be submitted in accordance with the "Guidelines for Curriculum Adjustment Requests on the Basis of Learning Disabilities," as published by the Undergraduate Advising Center.

Responsibilities of the University of Maryland at College Park. DSS counsels students and faculty and makes recommendations to the appropriate offices regarding whether and what kind of special aids or adaptations may be required by students with disabilities. Instructional, testing, and evaluation adjustments may be made by the faculty member(s) involved after the specific learning disability has been identified, verified, and discussed with DSS. The Deans will make the final decisions regarding requests for adjustments to curriculum, in consultation with DSS and the faculty member(s) involved.

DSS, 0126 Shoemaker, is open Monday through Friday, 8:30 a.m. to 4:30 p.m.

Dining Services

1144 South Dining Hall, 314-8054
Meal Plan Information: 314-8068

Dining Services offers several meal plan alternatives at 31 different dining locations across campus, providing flexibility, convenience, a diverse selection of foods, and convenient hours to all students, faculty, and staff.

Meal plans available include both a resident meal plan with two options and the Terrapin Express Card for off-campus students or students living in apartments on campus.

Dining locations include dining rooms, a custom deli, ethnic eateries, a table service restaurant, an upscale '50's-style eatery, a bakery, a dairy ice cream shop, traditional fast foods, and two convenience stores. Students may obtain more information and apply for a meal plan in the Dining Services Contract Office.

Educational Talent Search

0112 Chemistry Building, 314-7763

The federally-funded Educational Talent Search Program identifies and recruits low-income and potential first-generation college students between the ages of 12 and 27, who display the talent and academic ability to succeed in college, or who would like to reenter secondary or post-secondary programs. Through outreach to schools and community agencies, Talent Search provides college orientation and placement assistance services, advisement on post-secondary career and financial aid resources, pre-college development programs and workshops, tutorial programs, college campus visits, and assistance in preparing for college entrance exams and the application process. The program serves 950 participants annually.

Financial Aid

0102 Lee Building, 314-8313

The Office of Student Financial Aid (OSFA) administers a variety of financial assistance and student employment opportunities, primarily based on the need of the applicant. Members of the office staff are available for individual counseling on matters pertaining to financial planning for college expenses. For additional information, see the chapter on Fees and Financial Aid in this catalog.

Health Center

Campus Drive, opposite the Stamp Student Union, 314-8180

The UM University Health Center is located across from the Stamp Union on Campus Drive. The services provided by the University Health Center include primary care for illness and injury, health education and consultation, dental clinic, men's clinic, women's clinic, allergy clinic, anonymous HIV testing, substance abuse treatment, travel clinic, skin care clinic, sports medicine, physical therapy (located in the HLHP building), nutrition, mental health, social services, lab services, x-ray and a pharmacy. Individual and group health education programs are available on topics such as sexual health and contraception, stress management, substance abuse, date rape, dental health, and eating disorders. The University Health Center is open Monday-Friday, 7 a.m.-11 p.m. and Saturday and

Sunday, 9 a.m.-5 p.m. with varied hours during semester breaks and holidays. Students are seen for routine care between 9:00 and 5:00 on weekdays. Medical services are limited after 5:00p.m. and on weekends.

All currently registered students pay a mandatory health fee and are eligible for care. While the student health fee covers most routine costs at the University Health Center, there are additional charges for x-rays, lab tests, dental treatment, allergy injections, physical therapy and pharmacy supplies. All students are encouraged to carry hospitalization insurance. A student health insurance plan is available through the University. All students' medical records are strictly confidential and may only be released with the student's consent or through court-ordered subpoena.

The Health Center only gives class excuses for a prolonged illness or missed exams due to a serious illness.

University Health Center Phone Numbers:

Information	314-8180	Health Insurance	314-8165
Appointments	314-8184	Mental Health	314-8106
Dental Clinic	314-8178	Pharmacy	314-8167
Health Education	314-8128	Substance Abuse Prog.	314-8128

Honor Societies

Students who excel in scholarship and leadership may be invited to join the appropriate honor society. For information, contact the Office of Undergraduate Studies, 405-9363. Honor societies at College Park include:

*Alpha Epsilon (Agricultural Engineering)
*Alpha Epsilon Delta (Pre-medicine)
*Alpha Kappa Delta (Sociology)
*Alpha Lambda Delta (Scholarship-Freshmen)
Alpha Zeta (Agriculture)
Beta Alpha Psi (Accounting major in Business and Management)
Beta Gamma Sigma (Business and Management)
Delta Phi Alpha (National German Honors Society)
Eta Beta Rho (Hebrew)
*Eta Kappa Nu (Electrical Engineering)
Financial Management Association
*Gamma Theta Upsilon (Geography)
Golden Key National Honor Society (Scholarship and Leadership; juniors and seniors)
Iota Lambda Sigma (Industrial Education)
*Kappa Delta Pi (Education)
*Kappa Tau Alpha (Journalism)
*Lambda Pi Eta (Speech Communication)
*Mortar Board (Scholarship and Leadership)
*Omega Chi Epsilon (Chemical Engineering)
*Omega Rho (Business and Management)
*Omicron Delta Epsilon (Economics)
*Omicron Delta Kappa (Scholarship and Leadership)
*Omicron Nu (Home Economics)
Phi Alpha Epsilon (Health and Human Performance)
*Phi Alpha Theta (History)
Phi Beta Kappa (Liberal Arts and Sciences)
*Phi Eta Sigma (Scholarship-Freshmen)
*Phi Kappa Phi (Senior and Graduate Scholarship)
*Phi Sigma (Biology)
*Phi Sigma Iota (French and Italian)
Phi Sigma Pi (Scholarship and Leadership)
Pi Alpha Xi (Horticulture)
Pi Mu Epsilon (Mathematics)
Pi Pi (Slavic Languages)
*Pi Sigma Alpha (Political Science)
*Psi Chi (Psychology)
Salamander (Fire Protection Engineering)
Sigma Alpha Omicron (Microbiology)
Sigma Delta Chi (Society of Professional Journalists)
*Sigma Delta Pi (Spanish)
*Sigma Gamma Tau (Aerospace Engineering)
*Sigma Tau Delta (English)
*Tau Beta Pi (Engineering)

(*Members of Association of College Honor Societies)

Human Relations Programs

1107 Hornbake Library, 405-2838

The Human Relations Office (HRO) is responsible for initiating action in compliance with institution, state, and federal directives designed to provide equal education and employment opportunities for College Park campus students and employees. It also monitors the outcomes of actions taken in this regard, reporting its findings to the president, the Campus Senate, and to the campus community at large. The HRO will provide students and staff with general information on equity efforts and on the status of equity and compliance matters at the University of Maryland at College Park.

The HRO sponsors programs that promote cross-cultural appreciation, sexual harassment prevention, and processes complaints of discrimination, following procedures set forth in the Campus Human Relations Code.

Students or employees having a concern about possible inequities in educational or employment matters, or who wish to register a complaint, may contact an equity administrator (see list below).

Campus Equity Council (Administrators)

HRO Campus Compliance Officer
Dr. Gladys Brown, 1107 Hornbake Library 405-2838
Academic Affairs
Dr. Cordell Black, 1127 Main Administration 405-7227
Administrative Affairs
Dr. Sylvia Stewart, 1132 Main Administration 405-1109
Agriculture and Life Sciences
Dr. Amel Anderson, 1224 Symons Hall 405-2085
Architecture
Mr. Stephen F. Sachs, 1205 Architecture Bldg. 405-6314
Arts and Humanities
Dr. Stephanie Pogue 405-2105
Behavioral and Social Sciences
Dr. Diana Jackson, 2141 Tydings Hall 405-1679
Business and Management
Dr. William Bradford, 1146 Tydings Hall 405-2306
Computer, Mathematical, and Physical Sciences
Dr. George Goldenbaum, 3417 A.V. Williams Building 405-2313
Education
Dr. Jeanette Kreiser, 3119 Benjamin Building 405-2339
Engineering
Dr. Marilyn Berman, 1137 Engineering Classroom Bldg. 405-3871
Health and Human Performance
Ms. Colleen (Coke) Farmer, 2314 HLHP Bldg. 405-2475
Human Ecology
Dr. Noel Myricks, 1204F Marie Mount Hall 405-4007
Institutional Advancement
Ms. Patty Wang, 3112 Lee Building 405-7764
Journalism
Dr. Greig Stewart, 2115 Journalism Building 405-2390
Library and Information Services
Dr. William Cunningham, 4111C Hornbake Library 405-2046
President's Office
Mr. Ray Gillian, 1111 Main Administration 405-5795
Public Affairs
Dr. Stephen M. Block, BMGT/SPA Building 405-6354
Student Affairs
Ms. Sharon Fries-Britt, 2108 Mitchell Building 314-8431
Undergraduate Studies
Ms. Jo-Ann Amadeo, 2130 Mitchell Building 405-9362

Intercollegiate Athletics

Cole Student Activities Building, 314-7075

The Department of Intercollegiate Athletics is responsible for directing intercollegiate athletic programs for both women and men, and for managing the College Park athletic complex.

Women's intercollegiate athletic teams include cross country, field hockey, soccer, and volleyball in the fall; basketball, swimming, indoor track and gymnastics during the winter; and lacrosse and track in the spring. Tennis competition is scheduled in both the fall and spring seasons.

There are men's teams in football, soccer and cross country in the fall; basketball, swimming, wrestling, and indoor track during the winter; and baseball, golf, tennis, lacrosse, and outdoor track in the spring.

Most men's and women's teams compete in the Atlantic Coast Conference (ACC) and all compete in the National Collegiate Athletic Association (NCAA).

National Collegiate Athletic Association Requirements for Student Athletes

1. NCAA eligibility for regular season competition subsequent to the student's first year is based upon satisfactory completion prior to each fall term of twenty four (24) semester hours of acceptable degree credits or an average of twelve (12) semester hours per term of attendance.
2. The calculation of credit hours shall be based upon hours accepted for degree credit at the institution.
3. Student athletes must declare a major program of study no later than the beginning of their fifth term of attendance.
4. Credit hours earned toward athletic eligibility for students in declared majors must be acceptable in their specific majors.
5. The 24 credit hours of acceptable credit required each year may include credits earned for a repeated course when the previous grade was an F, but may not include the credits if the previous grade was D or better.

University of Maryland Athletic Eligibility Requirements

The University of Maryland at College Park requires student athletes to maintain a specified minimum grade point average to be eligible for practice and competition. The following standards are effective for fall term, 1991:

Freshman (second term)	1.29 cumulative GPA
2nd year enrollment	1.78 cumulative GPA
3rd year enrollment	1.86 cumulative GPA
4th year enrollment	2.00 cumulative GPA
5th year enrollment	2.00 cumulative GPA

Mid-Year Enrollees

Student athletes who matriculate in the spring semester are required to meet the following grade point average standards:

End of 1st semester	1.29 cumulative GPA
End of 2nd semester	1.78 cumulative GPA
End of 3rd semester	1.86 cumulative GPA
End of 4th semester	1.86 cumulative GPA
End of 5th semester	1.94 cumulative GPA
End of 6th semester	2.00 cumulative GPA
End of 7th semester	2.00 cumulative GPA
End of 8th semester	2.00 cumulative GPA

Student athletes who meet the required grade point average and all other NCAA eligibility requirements will be eligible to compete and practice for the full academic year with the exceptions noted below:

1. Student athletes who fail to meet necessary grade point average requirements for the fall semester are ineligible for the entire academic year. However, ineligible student athletes may restore their eligibility at the end of any semester if they raise their grade point average to the minimum standard for the ensuing year.
2. Ineligible student athletes are not permitted to practice or compete.
3. First semester freshmen and transfer student athletes will be required to meet established grade point average requirements after their initial semester at the university. Transfer students are required to attain the appropriate grade point averages based upon year of enrollment.
4. Mid-year matriculants are required to meet the established GPA standard for each of their first three semesters. Thereafter, they will be reviewed at the beginning of each fall term.
5. Student athletes in their final year of eligibility must maintain a 2.0 cumulative GPA in order to be eligible for practice and competition during spring term.
6. Eligible student athletes who go on academic warning after fall term are required to attend regularly supervised study sessions and receive academic support services as assigned by the Academic Support Unit Staff.
7. Dismissed and later reinstated student athletes are ineligible for both practice and competition until they meet designated grade point averages.

The Office of Intercollegiate Athletics also sponsors a number of awards for achievement in athletics and/or scholarship. Consult the Student Athlete Handbook for details.

For further information, contact the Academic Support Unit, 314-7042.

International Education Services

3116A Mitchell Building, 314-7740

International students and faculty receive a wide variety of services designed to help them benefit from their experience in the United States. International Education Services works closely with the Office of Undergraduate Admission, evaluating academic records from overseas and processing applications for English proficiency, visa, and financial requirements. Other services provided to the prospective student include special advising and orientations, help with securing housing, information about programs of international interest, and assistance with the forms that are required for compliance with immigration and other governmental regulations.

Study Abroad Office. American students and faculty receive advisement and information about study, travel, and work in other countries. Students may obtain assistance with transfer credits, reenrollment, pre-registration, and housing for the semester they return to campus. The University of Maryland at College Park offers study abroad programs throughout the world. For more information about Study Abroad, see the Campus-wide Programs section of this catalog.

English Language Instruction for Non-native Speakers. The University of Maryland, through the Maryland English Institute, offers two programs of English language instruction for those who are not native speakers of English. For those students who are admissible but require part-time English instruction, the Maryland English Institute offers semi-intensive (part-time) instruction. Semi-intensive study would also require the student to enroll in a half-time academic program.

Judicial Programs

2117 Mitchell Building, 314-8204
(To report instances of academic dishonesty, 314-8450)

General Statement of Student Responsibility. Students are expected to conduct themselves at all times in a manner consistent with the university responsibility of ensuring to all members of the community the opportunity to pursue their educational objectives, and of protecting the safety, welfare, rights, and property of all members of the community and of the university itself. Students should consult the Code of Student Conduct, Appendix C, for further information.

Student judicial board members are invited to assume positions of responsibility in the university discipline system in order that they might contribute their insights to the resolutions of disciplinary cases. Final authority in disciplinary matters, however, is vested in the campus administration and in the Board of Regents.

Disciplinary Procedures. Students accused of violating university regulations are accorded fundamental due process in disciplinary proceedings. Formal rules of evidence, however, shall not be applicable, nor shall deviations from prescribed procedures necessarily invalidate a decision or proceeding unless significant prejudice to one of the parties may result. University hearing and conference procedures are outlined in the documents titled "Preparing for a Hearing" and "Preparing for a Conference," available from the Office of Judicial Programs.

Multi-Ethnic Student Education

1101 Hornbake Library, 405-5616

The Office of Multi-Ethnic Student Education (OMSE) was officially created on July 1, 1972, as a result of proposals and recommendations submitted to the chancellor from the Campus Black Community and the Study Commission on Student Life. The office exists to enhance the personal and social development and the academic success of multi-ethnic students. Its mission is to work together with other resources on campus to provide support services for multi-ethnic students throughout their college career at the University of Maryland at College Park (UMCP).

Throughout the year OMSE implements several key programs that have as their objective enhancing the recruitment, retention, and graduation of multi-ethnic students at UMCP. Included among the programs are the Tutorial Program, Job Fair, a mentoring program, a course, EDCP 108N: College and Career Advancement: Concepts and Skills for Multi-Ethnic Students, and Celebrating Academic and Leadership Excellence to recognize outstanding students of color at UMCP.

The OMSE Tutorial Program is designed to provide assistance to multi-ethnic students on a walk-in or appointment basis.

The Annual Career and Job Fair is designed to contribute to the career development of multi-ethnic undergraduates at all levels. It brings representatives from local and national companies to see students who are interested in either permanent positions, summer positions, internships, or general occupational information. Workshops in resume writing and interviewing techniques are available for students prior to the Job Fair.

OMSE staff members attempt to develop a healthy socio-cultural multi-ethnic community by encouraging and assisting in the organizing of pre-professional societies in each academic department. OMSE supports some and works cooperatively with a number of multi-ethnic pre-professional societies, including law, business, media, engineering, and computer science. OMSE also works closely with the campus Hispanic Student Union, the Native American Student Union, the Black Student Union, and the Panhellenic Council.

The OMSE office contains a study-lounge that doubles as a tutorial center and an OMSE/CSC Open WAM lab. It provides multi-ethnic students with an opportunity to study, get assistance from a tutor, or work at state-of-the-art computers in a relaxed, atmosphere.

Nyumburu Cultural Center

J. Otis Williams, Director
3125 South Campus Dining Hall, 314-7758

The Nyumburu Cultural Center serves as a major resource of cultural, historical and social programming at UMCP. The center works closely with student, faculty and neighborhood organizations in the production of multi media, diverse programs and activities based on the African American experience. Nyumburu is home for the Maryland Gospel Choir, Shades of Harlem (performing Arts Ensemble) UMCP Chapter NAACP, Sophisticated Steppers Modeling Group, Black Drama workshop, Black Explosion Newspaper and the Miss Black Unity Pageant.

Orientation

1195 Stamp Student Union, 314-8217

The primary goal of orientation is to ease the transition of new students into the university community. Orientation begins when students are admitted to the university, and ends at the culmination of the first semester. At the time of admission to the university, new students will receive material announcing the orientation and registration program. The purpose of the program is to

- Introduce new students to the academic community
- Coordinate academic advisement for the first semester
- Introduce campus services and resources
- Administer the math placement test.
- Register students for their first semester courses

The Freshman Program runs for two days and provides new students with the opportunity to interact formally and informally with faculty, administrators, returning students, and other new students. The Transfer Program lasts for one day and focuses on transfer evaluation, advisement, and registration. The math placement test is administered during both orientation programs.

Note: Students who arrive after 8:30 a.m. on their program day will be reassigned to the next available day.

Parents of new students are invited to attend a one-day program specifically designed to introduce parents to the academic, social, and cultural milieux of the university. These programs are offered during June and July.

The Orientation Office also coordinates the ongoing one-credit orientation course EDCP 108-O. The goal of this course is to introduce students to the world of higher education generally, and the University of Maryland specifically. The course is taught by faculty and administrators, and is limited to 22 students per section.

Parking

Parking Garage 2 (on Regents Drive), 314-PARK

The Department of Campus Parking (DCP) is responsible for managing and maintaining over 16,000 parking spaces on the University of Maryland at College Park (UMCP) campus. All students who plan to park a licensed motor vehicle in one of these spaces must register for a parking permit at the DCP office. Campus resident students who have earned 55 or fewer UMCP-accepted credits may not register for a parking permit.

Because UMCP has limited parking spaces, parking regulations are strictly enforced.

Illegally parked vehicles, as well as those vehicles not displaying a UMCP parking permit, will be ticketed, and students with outstanding parking fines may be barred from registration.

Complete parking regulations, a disabled parking directory, schedule of fines, and other information may be obtained from DCP.

Records and Registration

First floor, Mitchell Building, 314-8240

The Office of Records and Registration provides services to students and academic departments related to the processes of registration, scheduling, withdrawal, and graduation. The office also maintains the student's academic records, and issues transcripts. Staff members are available to students for consultation. For detailed information about registration procedures, student records, and academic regulations, please see the chapter on Records and Registration in this catalog.

Recreation Services

1104 Reckord Armory, 314-7218
24-hour recording: 314-5454

Thousands of undergraduate and graduate students, faculty and staff members recognize the value of spending their free time in some sort of healthful physical activity. They find a lifestyle which balances academic pursuits with recreational and social involvement ideal for a fulfilling and enjoyable college experience. The Campus Recreation Services (CRS) staff meets almost everyone's leisure-time needs through informal recreational opportunities, intramural sports activities, fitness and wellness programs, sport clubs, and special events.

Informal recreational opportunities include lifting weights, working out at the Fitness Center, running, swimming laps, and joining a colleague for a friendly game of racquetball, squash, or tennis. Intramural sports provide organized tournament and league play for individuals, pairs, and teams.

Fitness and wellness programs exist in the form of aerobics and water aerobics sessions and the Terrapin Fitness Challenge, a self-directed fitness program, while twenty-four sport clubs (from bowling and martial arts to rugby and sailing) are organized and supported through CRS. These groups comprise students, faculty, and staff interested in participating (and sometimes competing against other colleges) in one particular sport.

Fees paid at the time of class registration cover virtually all the costs of participating in CRS activities.

Religious Programs

University Memorial Chapel and 0101 Annapolis Hall, 314-7884

The following chaplains and their services are available:

Baptist Gerald Buckner, Chaplain	1101 Memorial Chapel, 405-8443
Black Ministries Program Weldon Thomas, Chaplain	2120 Memorial Chapel, 405-8445
Christian Science Bob Snyder, Advisor	1112 Memorial Chapel, 699-9152
Church of Jesus Christ of Latter Day Saints (Mormon) Jerry Houck, Director	7601 Mowatt Lane College Park, MD 20740 422-7570

Episcopal
William Bolin, Chaplain — 2116 Memorial Chapel, 405-8453

Hindu
Kiran Sankhla, Chaplain — 2112 Memorial Chapel, 314-8008

Jewish
Seth Mandell, Chaplain — Jewish Student Center, 7612 Mowatt Lane, College Park, MD 20740, 422-6200

Lutheran
Elizabeth Platz, Chaplain — 2103 Memorial Chapel, 405-8448

Roman Catholic
Thomas Kalita, Chaplain
Rita Ricker, Associate
4141 Guilford Drive, College Park, MD 20740, 864-6223

United Campus Ministry — 2101 Memorial Chapel, 405-8450
Rob Burdette, Chaplain
Holly Ulmer, Chaplain
Ki Yul Chung, Associate Chaplain

Resident Life

2100 Annapolis Hall, 314-2100

The Department of Resident Life is responsible for management of the residence halls as well as for cultural, educational, recreational, and social programming activities in the residence halls. A staff of undergraduate and graduate employees helps to meet the needs of resident students.

On-campus housing/dining is readily available for all undergraduate students in 35 undergraduate residence halls near academic, cultural, social, and recreational resources of the campus. All-male, all-female, and coeducational living arrangements are available in the halls, which accommodate from 34 to 575 residents. Most new students will be assigned to traditional residence halls. Apartments for four to six students, and kitchenless suites for four to eight students are available for upper class students.

All students are encouraged to live on campus. Freshman and transfer students will find housing accommodations and student interaction a benefit to the college experience. To secure an offer of housing and dining services for the academic year, check the interest block on the undergraduate application for admission. Students may also apply for on-campus housing through Resident Life after they are admitted. Once accommodated, students may remain in residence halls throughout their undergraduate career.

Stamp Student Union

Administrative Offices, 2104 Stamp Student Union, 314-8502

The Adele H. Stamp Student Union is the "community center" of the University of Maryland at College Park. More than 17,000 students, faculty, staff members, and campus guests visit the union daily to take advantage of its services, programs, and facilities. In serving as the campus community center, the union offers lounge space, a variety of information services, recreation and leisure activities, student sponsored programs, visual arts, retail outlets, and more than 40,000 square feet of reservable space.

Information Services

- Information Center located in the main lobby, 314-DESK
- Bulletin Boards located throughout the building
- Copy machines in the main lobby.
- Display showcases located on the main level

Recreation and Leisure

- Hoff Movie Theatre, 314-HOFF
- Piano practice rooms located on the second level
- Recreation Center, including full-service bowling lanes, billiard tables, and video games, 314-BOWL.

Student Sponsored Programs

- Stamp Union Program Council (SUPC), a student-directed program board whose committees plan games, tournaments, concerts, lectures, outdoor recreation trips, and bicycle and road races, 314-8495.
- Student Tutorial Academic Referral Center (STAR Center), offering tutor listings and test files, 314-8359.
- Student Organization offices of over 40 student groups, including the Student Government Association.

Visual Arts, 314-ARTS

- Art Center, a visual arts work and teaching center, offering mini-courses and arts services, including graphic design, sign, and banner services.
- Parents' Association Art Gallery, located off the main lobby.

Retail Outlets (except for the University Book Center, located in the lower level mall area)

- Citizens Bank and Trust Co. of Maryland 314-8603
- University Book Center (lower level) 314-BOOK
- Food Services: Eateries, Dory's Ice Cream, Maryland Food Co-op, Deli and Sandwich Factory, Pizza Shop, Roy Roger's (779-3917), and Umberto's Restaurant (314-8022).
- Mailboxes Etc., a full service postal and packaging facility 314-9982
- Ticket Office, offering campus performance tickets, and a full Ticket Master Outlet, 314-TKTS.
- Union Shop, featuring snacks, sodas, tobacco, and newspapers and magazines

Reservable Space

The union offers meeting rooms that accommodate groups from 8 to 1000 people. For reservations, or catering information, contact the Union Reservation Office, 314-8488.

Stamp Student Union Hours

The union is open Monday through Friday, 7:00 a.m. to 12:00 midnight; Saturday, 8:00 a.m. to 1:00 a.m., and Sunday, 12:00 noon to 12:00 midnight.

Tutoring

Students needing tutoring should first contact their professors or the graduate teaching assistants assigned to courses. They should inquire also at the department office to find out if the department sponsors any tutoring services. Many campus clubs, organizations, and honors societies also offer tutoring. Check out the Learning Assistance Center, University Honors Program, Office of Multi-ethnic Student Education, and the STAR Center in the Stamp Student Union.

Tutoring for some 100 and 200 level courses is available through the Intensive Education Development Office, 0112 Chemistry Building. Students may also sign up as tutors at IED. Call 405-4736 for further information.

University Book Center

Lower level, Stamp Student Union, 314-BOOK

The Book Center provides a convenient (on-campus) selection of textbooks and general interest books, including literature, technical books, and best sellers. It also offers a large selection of school and office supplies and computer software and supplies to meet every educational need. The Book Center also carries a wide selection of imprinted clothes and related items, plus cards, gifts, snacks, and other convenience items including health and beauty aids.

The Book Center is open Monday through Thursday, 8:30 a.m. to 7:00 p.m.; Friday, 8:30 a.m. to 5:00 p.m., and Saturday and Sunday, 12:00 noon to 5:00 p.m.

Upward Bound Program

1107 West Education Annex, 405-6776

The University of Maryland Upward Bound Program (UBP) provides academic and counseling assistance to capable but underachieving high school students with the purpose of preparing them to pursue post-secondary education. The UBP supplements its participants' secondary school experiences by providing each student with opportunities to improve or develop the skills he or she needs in order to acquire a positive self-image, broaden educational and cultural perspectives, and realize undiscovered potentials.

Throughout the school year and during the summer residential program, participants may take advantage of the UPB's academic instruction, tutoring, counseling, and innovative educational experiences designed to help them develop the basic academic skills and motivation they need to achieve success in secondary school.

High school students in Prince George's and Montgomery counties receive recommendations to the UBP from their high school principals, teachers, and counselors or from the Educational Talent Search Program, social service agencies, or individuals familiar with the UPB.

CHAPTER 4

REGISTRATION, ACADEMIC REQUIREMENTS, AND REGULATIONS

REGISTRATION

First Floor Mitchell Building, 314-8240

To attend classes at the University of Maryland at College Park it is necessary to process an official registration. Specific registration dates and instructions can be found in the current Schedule of Classes. The schedule is issued four times per year: prior to early registration for the fall and spring semesters, and again at the beginning of each semester. The Summer Programs catalog is distributed in late March.

1. Newly admitted students are invited and encouraged to attend an orientation session. Advising and course registration are part of the program. All newly admitted students must meet with an advisor prior to registration.
2. All newly admitted freshman and transfer students are required to provide proof of immunization for measles, rubella, mumps, and tetanus/diphtheria.
3. Currently enrolled students are invited to early registration. Registration appointments for the fall semester begin in late March, appointments for the spring semester begin in late October.
4. Open registration follows Early Registration and continues up to the first day of classes. During this time students may make schedule adjustments or process an original registration.
5. The **schedule adjustment period** is the first ten day of classes for the fall and spring semesters, and the first five days of classes for summer sessions. During this period, full-time undergraduates may drop or add courses, change sections, or change credit level with no charge. Part-time undergraduates may also drop or add courses, change sections, or change credit level, but they should consult the deadline section in the Schedule of Classes to avoid incurring additional charges. The choice of grading method option (including the pass-fail option) may be changed only during the schedule adjustment period. Registration is final and official when all fees are paid.

   Departments may identify courses or sections of courses with the approval of the Office of the Vice President for Academic Affairs, which after the first five days of the schedule adjustment period in spring and fall semesters, shall require faculty or departmental approval for students to add.

   Courses may be added, where space is available, during the schedule adjustment period and will appear on the student's permanent record along with other courses previously listed. Courses dropped during this period will not appear on the student's permanent record.
6. After the schedule adjustment period.
   a) Courses may not be added without special permission of the department and the dean of the academic unit in which the student is enrolled.
   b) All courses for which the student is enrolled shall remain as a part of the student's permanent record. The student's status shall be considered as full-time for certification purposes if the number of credit hours enrolled at this time is twelve or more. For billing purposes, a student is considered full-time if the number of credit hours enrolled is nine or more.
   c) An official class list for each course being offered is issued to the appropriate department by the Office of Records and Registrations. Students are not permitted to attend a class if their names do not appear on the class list. Instructors must report discrepancies to the Office of Records and Registrations.
7. The **drop period** for undergraduate students will begin at the close of the schedule adjustment period and terminate at the end of tenth week of classes during the fall and spring semesters and at a corresponding time for summer sessions.

   During the drop period a student may drop a maximum of four credits. However, if the course that the student wishes to drop carries more than four credits, the student may drop the entire course or, in the case of a variable credit course, reduce the credit level by up to four credits. Such a drop will be recorded on the student's permanent record with the notation "W" and will be considered to represent a single enrollment (one of two possible) in the course. This mark shall not be used in any computation of cumulative grade point average.
8. At the end of the semester official grade lists are issued to each department. Instructors mark the final grades on the grade lists, sign the lists and return them to Records and Registrations.
9. **Withdrawal from the University.** Students wishing to withdraw from all courses must do so on or before the last day of classes. The policies governing withdrawals are as follows:
   a. Should a student desire or be compelled to withdraw from the university at any time, he or she must secure a form for withdrawal from the Records Office, and submit the form along with the semester registration card.
   b. The effective date of withdrawal as far as refunds are concerned is the date that the withdrawal form is received by the Records Office. Notation of withdrawal, and the effective date of the withdrawal, will be posted to the permanent record. Instructors and college offices will be notified of all withdrawn students. The deadline date for submitting the withdrawal form for each semester is the last day of classes. Contact Undergraduate Admissions for readmission information.
   c. It is the intent of the University of Maryland at College Park to facilitate the withdrawal or change in registration and the reenrollment of students who are called to active military duty during the semester. The student (or a representative) should bring a copy of the military orders to the Records Office and process "withdrawal" papers or "change in registration" papers. Complete procedures are available from the office of Records and Registration.
10. When Dean's approval is required, the Dean for Undergraduate Studies shall assume the responsibilities normally delegated to the dean in the case of students who are advised in the Division of Letters and Science.

General Education Requirements

Please see Chapter 5.

Enrollment in Majors

A student who is eligible to remain at the University of Maryland at College Park may transfer among curricula, colleges, or other academic units except where limitations on enrollments have been approved. Students must be enrolled in the major program from which they plan to graduate when registering for the final fifteen hours of the baccalaureate program. This requirement also applies to the third year of the combined, preprofessional degree programs.

Students who wish to complete a second major in addition to their primary major of record must obtain written permission in advance from the appropriate dean(s). As early as possible, but in no case later than the

beginning of the second semester before the expected date of graduation, students must file with the departments or programs involved and with the appropriate dean(s), formal programs showing the courses to be offered to meet requirements in each of the majors and supporting areas as well as the college and general education requirements. Approval will not be granted if there is extensive overlap between the two programs. Students enrolled in two majors simultaneously must satisfactorily complete the regularly prescribed requirements for each of the programs. Courses taken for one major may be counted as part of the degree requirements for the other and toward the University's general education requirements. If two colleges are involved in the double major program, the student must designate which college is responsible for the maintenance of records.

Credit Unit and Load Each Semester

No baccalaureate curriculum requires fewer than 120 semester hours. The semester hour, which is the unit of credit, is the equivalent of a subject pursued one period a week for one semester. Two or three hours of laboratory or field work are equivalent to one lecture or recitation period. The student is expected to devote three hours a week in classroom or laboratory or in outside preparation for each credit hour in any course.

In order for undergraduate students to complete most curricula in four academic years, the semester credit load must range form twelve to nineteen hours so that they would complete from thirty to thirty-six hours each year toward the degree. Students registering for more than nineteen hours per semester must have the approval of their dean.

Classification of Students

Official classifications of undergraduate students are based on earned credits as follows: freshman, 1-27 semester hours; sophomore, 28-55; junior, 56-85; and senior, 86 to at least 120.

Concurrent Undergraduate-Graduate Registration

A senior at the University of Maryland whose GPA is at least 3.0 and who is within seven hours of completing the requirements for the undergraduate degree may, with the approval of his or her dean, the chair of the department concerned, and the Graduate School, register for graduate courses, which may later be counted for graduate credit toward an advanced degree at this university. The total of undergraduate and graduate credits in the senior year cannot be used for graduate credit unless proper pre-arrangement is made. Seniors who wish to take advantage of this opportunity must formally apply for admission to the graduate school.

Undergraduate Credit for Graduate Level Courses

Subject to requirements determined by the graduate faculty of the department or program offering the course, undergraduate students may register for graduate level courses, i.e., those numbered from 600 to 898, with the exception of 799, for undergraduate credit.

A student seeking to utilize the option will normally be in the senior year, have earned an accumulated grade point average of at least 3.0, have successfully completed, with a grade of "B" or better, the prerequisite and correlative courses, and be a major in the offering or closely related department. The student will be required to obtain prior approval of the department offering the course. Graduate School approval is not required.

Enrollment in a graduate level course does not in any way imply subsequent departmental or graduate school approval for admission into a graduate program, nor may the course be used as credit for a graduate degree at the University of Maryland.

Individual Combined BA/MA Programs

In 1990, the Board of Regents of the University of Maryland authorized the individual development of combined Bachelor's and Master's degree programs. For complete guidelines, requirements, and application procedures, students should consult with their major department no later than the beginning of the second semester of the sophomore year.

Courses taken at Other Institutions

Courses taken at another institution may not be credited toward a degree without approval in advance by the dean of the college from which the student expects a degree. The same rule applies to off campus registration in the summer program of another institution. Courses taken through The Consortium of Universities of the Washington Metropolitan Area are treated as resident credit. (See section on the Consortium, below.) Permission to enroll in off-campus courses must be requested for any course which will eventually be added to the University of Maryland at College Park transcript

THE CONSORTIUM OF UNIVERSITIES OF THE WASHINGTON METROPOLITAN AREA

The Consortium of Universities of the Washington Metropolitan Area consists of American University, The Catholic University of America, Gallaudet College, Georgetown University, George Washington University, Howard University, Marymount University, Mt. Vernon College, Trinity College, University of the District of Columbia, and the University of Maryland at College Park. Students enrolled in these institutions are able to attend certain classes at the other campuses and have the credit considered as resident credit at their own institutions. The intention is to allow students to take an occasional course to augment a program rather than to develop an individual program. Payment of tuition for courses will be made at the student's home campus.

Currently registered, degree-seeking University of Maryland at College Park undergraduates may participate in the consortium program according to the stipulations listed in the current edition of the Schedule of Classes. Golden ID students are not eligible to enroll in courses through the consortium with waiver of fees. Students interested in additional information about the consortium program should contact the consortium coordinator in the Office of Records and Registrations, Mitchell Building.

VETERANS BENEFITS

Students attending the university under the Veterans Education Assistance Act (Title 38, U.S. Code) may receive assistance and enrollment certification at the Veterans Certification Office in Records and Registrations, first floor of the Mitchell Building. Consult the Schedule of Classes for further information.

IDENTIFICATION CARDS

There are two cards, used jointly, to identify currently enrolled students: the photo ID and the semester registration card. The photo ID card is issued at the time the student first registers for classes. This card is to be used for the entire duration of enrollment. Additionally, students who have food service contracts will use this photo identification card. Contact Dining Services directly for further information. The semester registration card validates the photo identification card and is issued for each semester in which the student is registered. Both cards should be carried at all times.

Together the photo identification card and semester registration card can be used by students to withdraw books from the libraries, for admission to most athletic, social, and cultural events, and as a general form of identification on campus.

There is a replacement charge of $1.00 for lost or stolen registration cards and $20.00 for lost, stolen, or broken photo identification cards. Questions concerning the identification card system should be addressed to the Office of Records and Registrations.

Change of Address

Students are expected to notify the Office of Records and Registrations of any change in their local or permanent address. Change of Address forms are available at the Registration Counter, first floor, Mitchell Building and at the Office of the Bursar, first floor, Lee Building.

ATTENDANCE AND ASSESSMENT/EXAMINATIONS

Attendance

1. The university expects each student to take full responsibility for his or her academic work and academic progress. The student, to progress satisfactorily, must meet the quantitative requirements of each course for which he or she is registered. Students are expected to attend classes regularly, for consistent attendance offers the most effective opportunity open to all students to gain developing command of the concepts and materials of

their course of study. However, attendance in class, in and of itself, is not a criterion for evaluation of the student's degree of successor failure. Furthermore, absences (whether excused or unexcused) do not alter what is expected of the student qualitatively and quantitatively. Except as provided below, absences will not be used in the computation of grades, and the recording of student absences will not be required of the faculty.

2. It is the policy of the university to excuse the absences of students that result from the following causes: illness (where the student is too ill to attend class), religious observance (where the nature of the observance prevents the student from being present during the class period), participation in university activities at the request of university authorities, and compelling circumstances beyond the student's control. Students claiming excused absence must furnish documentary support for their assertion that absence resulted from one of these causes.
3. In certain courses, in-class participation is an ongoing requirement and an integral part of the work of the course, for example, courses in public speaking, courses requiring group discussion, courses emphasizing physical activity and conversation in foreign languages, and courses with laboratories. In other courses, occasional in-class assessments may occur, sometimes without advance notice. It is the responsibility of the instructor to inform each class at the beginning of the semester of the nature of in-class participation expected and what effect absences will have on the evaluation of the student's work in the course.
4. Absences in courses where in-class participation is a significant part of the work of the course shall be handled by the instructor in the course in accordance with the general policy of his or her department and college.

Assessment

1. The university provides for the rescheduling of significant assessments by students without penalty, when such assessments are missed by students with an excused absence, except in cases where the nature of the assessment precludes the possibility of rescheduling. In no case may an examination be scheduled on Rosh Hoshanah, Yom Kippur, Good Friday or the first two days of Passover. (Students who have a concern with other religious observances should see their instructor at the start of the semester.) An instructor is not under obligation to give a student a make-up assessment unless the failure to perform was due to an excused absence, that is, due to illness (where the student is too ill to attend class), religious observance (where the nature of the observance prevents the student from being present during the class period), participation in university activities at the request of university authorities, or compelling circumstances beyond the student's control. In cases of dispute, the student may appeal to the chair of the department offering the course within one week from the date of the refusal of the right to a make-up assignment. In those instances where the instructor is the chair, the appeal may be made to the dean; the chair's or dean's decision is final. When permitted, a make-up assessment must be given on campus unless the published schedule or course description requires other arrangements. The make-up assessment must be at a time and place mutually agreeable to the instructor and student, cover only the material for which the student was originally responsible, be at a comparable level of difficulty with the original assessment, and be given within a time limit that retains the currency of the material. The make-up assessment must not interfere with the student's regularly scheduled classes. In the event that a group of students requires the same make-up assessment, one make-up assessment time may be scheduled at the convenience of the instructor and the largest possible number of students involved.

2. The student must notify his or her instructor of the reason for absence as soon as possible. Where the reason for absence from a scheduled assessment is known well in advance (for example, in cases of religious observance or participation in university activities at the request of university authorities), the student must inform the instructor by the end of the schedule adjustment period. Prior notification is especially important in connection with final examinations, since failure to reschedule a final examination before conclusion of the final examination period may result in loss of credits during the semester. Where the reason is not known well in advance (for example, in cases of illness or compelling circumstances beyond the student's control), the student must inform the instructor as soon as the reason develops, if that is feasible, or, otherwise, as soon as possible after its development.
3. All examinations and tests shall be given during class hours in accordance with the regularly scheduled (or officially "arranged") time and place of each course listed in the Schedule of Classes. Unpublished changes in the scheduling or location of classes/tests must be approved by the department chair and reported to the dean. It is the responsibility of the student to be informed concerning the dates of announced quizzes, tests, and examinations.
4. A final examination shall be given in every undergraduate course. Exceptions may be made with the written approval of the chair of the department or the dean. All final examinations must be held on the examination days of the Official Final Examination Schedule. No final examination shall be given at a time other than that scheduled in the Official Final Examination Schedule without written permission of the department chair.
5. Graduating seniors will be expected to take final examinations during the regular final examination period. However, graduating seniors are not required to take final examinations on the day of graduation or on any regularly scheduled day following graduation. In courses with examinations scheduled on those days, graduating seniors must notify their instructors by the end of the schedule adjustment period.
6. The chair of each department is responsible for the adequate administration of examinations in courses under his or her jurisdiction.
7. Every examination shall be designed to require for its completion not more than the regularly scheduled period. In the case of final examinations, the time allotted should not exceed the scheduled final examination period.
8. A typewritten, mimeographed or printed set of questions shall be placed in the hands of every examinee in every test or examination requiring at least one period, unless the dean has authorized some other procedure.
9. The following rules shall govern all university examinations, unless the instructor for a specific course stipulates alternate rules for that course. A breach of any of the rules shall constitute "disruption of class," a disciplinary offense (Code of Student Conduct, section 9[j]), and may serve as the basis of an allegation of academic dishonesty.
   a. Students arriving late for an examination may not unreasonably disrupt the examination room.
   b. Students must leave all unauthorized materials (e.g., books, notes, calculators) with the proctor before being seated.
   c. Where seating arrangements are established by proctors, students must conform to these arrangements.
   d. Students may not return to an examination room after leaving, unless permission to do so has been granted by the proctor prior to the student's departure.
   e. Students must cease conversation prior to the passing out of examination papers and maintain silence during the entire examination period.
   f. Students must place examination papers face down on the writing desk until the examination is officially begun by the proctor.
   g. Students must keep examination papers flat on the writing desk at all times.
   h. Students at an examination must be prepared to show current university identification.
10. Each faculty member is to retain, for one full semester after a course is ended, the students' final examinations. If a faculty member goes on leave for a semester or longer, or leaves the university, the final examinations and grade records for the course must be left with the department chair.

STATEMENT ON CLASSROOM CLIMATE

The University of Maryland at College Park values the diversity of its student body and is committed to providing a classroom atmosphere that encourages the equitable participation of all students. Patterns of interaction in the classroom between the faculty member and students and among the students themselves may inadvertently communicate preconceptions about student abilities based on age, disability, ethnicity, gender, national origin, race, religion or sexual orientation. These patterns are due in part to the differences the students themselves bring to the classroom. Classroom instructors should be particularly sensitive to being equitable in the opportunities they provide students to answer questions in class, to contribute their own ideas, and to participate fully in projects in and outside of the classroom.

Of equal importance to equity in the classroom is the need to attend to potential devaluation of students that can occur by reference to demean

ing stereotypes of any group and/or overlooking the contributions of a particular group to the topic under discussion. Joking at the expense of any group creates an inhospitable environment and is inappropriate. Moreover, in providing evaluations of students, it is essential that instructors avoid distorting these evaluations with preconceived expectations about the intellectual capacities of any group.

It is the responsibility of individual faculty members to review their classroom behaviors, and those of any teaching assistants they supervise, to ensure that students are treated equitably and not discouraged or devalued based on their differences. Resources for self-evaluation and training for faculty members on classroom climate and interaction patterns are available from the Office of Human Relations.

RECORDS

Marking System and Record Notations

The Records Office, located on the first floor of the Mitchell Building, is responsible for maintaining student records and issuing official transcripts.

The following symbols are used on the student's permanent record for all courses in which he or she is enrolled after the initial registration and schedule adjustment period: A, B, C, D, F, I, P, S, and W. These marks remain as part of the student's permanent records and may be changed only by the original instructor on certification, approved by the department chair and the dean, that an actual mistake was made in determining or recording the grade.

A — denotes excellent mastery of the subject and outstanding scholarship. In computations of cumulative or semester averages, a mark of A will be assigned a value of 4 quality points per credit hour.

B — denotes good mastery of the subject and good scholarship. A mark of B is assigned a value of 3 quality points per credit hour.

C — denotes acceptable mastery of the subject and the usual achievement expected. A mark of C is assigned a value of 2 quality points per credit hour.

D — denotes borderline understanding of the subject. It denotes marginal performance, and it does not represent satisfactory progress toward a degree. A mark of D is assigned a value of 1 quality point per credit hour.

F — denotes failure to understand the subject and unsatisfactory performance. A mark of F is assigned a value of 0 quality points per credit hour.

S — is a department option mark that may be used to denote satisfactory performance by a student in progressing thesis projects, orientation courses, practice teaching, and the like. In computation of cumulative averages a mark of S will not be included.

W — is used to indicate withdrawal from a course in which the student was enrolled at the end of the schedule adjustment period. For information and completeness, the mark of W is placed on the student's permanent record by the Office of Records and Registrations. The instructor will be notified that the student has withdrawn from the course. This mark is not used in any computation of quality points or cumulative average totals at the end of the semester.

Audit — A student may register to audit a course or courses which have been designated as available under the audit option and in which space is available. The notation AUD will be placed on the transcript for each course audited. A notation to the effect that this symbol does not imply attendance or any other effort in the course will be included on the transcript in the explanation of the grading system.

Pass-Fail — The mark of P is a student option mark, equivalent to A, B, C, or D. The student must inform the Registrations Office of the selection of this option by the end of the schedule adjustment period.

The following **Pass-Fail** policy was approved by the Board of Regents for implementation beginning with the spring 1989 semester:

1. To register for a course under the pass-fail option, an undergraduate must have completed 30 or more credit hours of college credit with a GPA of at least 2.0. At least 15 of these credit hours must have been completed at UMCP with a University of Maryland GPA of at least 2.0.
2. Courses for which this option applies must be electives in the student's program. The courses may not be college, major, field of concentration, or general education program requirements.
3. Only one course per semester may be registered for under the pass-fail option.
4. No more than 12 semester hours of credit may be taken under the pass-fail option during a student's college career
5. Students may not choose this option when re-registering for a course.
6. When registering under the pass-fail option, a course that is **passed** will count as **hours** in the student's record but will not be computed in the grade point average. A course that is **failed** will appear on the student's record and will be computed both in the overall average and the semester average.
7. Students registering for a course under the pass-fail option are required to complete all regular course requirements. Their work will be evaluated by the instructor by the normal procedure for letter grades. The instructor will submit the normal grade. The grades A, B, C, or D will automatically be converted by the Office of Records and Registrations to the grade P on the student's permanent record. The grade F will remain as given. The choice of grading option may be changed only during the schedule adjustment period for courses in which the student is currently registered.

Incompletes. The mark of "I" is an exceptional mark that is an instructor option. It is given only to a student whose work in a course has been qualitatively satisfactory, when, because of illness or other circumstances beyond the student's control, he or she has been unable to complete some small portion of the work of the course. In no case will the mark "I" be recorded for a student who has not completed the major portion of the work of the course.

1. The student will remove the "I" by completing work assigned by the instructor. It is the student's responsibility to request arrangements for completion of the work and to request that an Incomplete Contract be written. These arrangements must be documented in the Incomplete Contract, and signed by both the student and the instructor.
2. The Incomplete Contract must be submitted to the dean of the college offering the course, and a copy forwarded to the Records Office, within six weeks after the grade submittal deadline or the "I" will convert to a grade of "F." A copy of the signed agreement should also be filed in the department office.
3. All course work required by an Incomplete Contract must be completed by the time stipulated in the contract, usually the end of the next semester; but in any event, no later than one year. If the instructor is unavailable, the department chair will, upon request of the student, make the arrangements for the student to complete the course requirements. If the remaining work for the course as defined in the contract is not completed on schedule, the "I" will be converted to the grade indicated on the contract.
4. Exceptions to the time period cited above may be granted by the student's dean upon the written request of the student if circumstances are deemed to warrant further delay. The new completion date must again be specified and agreed to in writing by the student and the dean.
5. It is the responsibility of the instructor or the department chair concerned to return the appropriate supplementary grade report, both to the appropriate dean and to the Office of Records and Registrations, upon completion of the conditions of the Incomplete Contract.
6. The "I" cannot be removed through re-registration for the course or through the technique of "credit by examination." In any event this mark shall not be used in any computation of quality points or cumulative averages.

Record Notations

In addition to the above marks, there are provisions for other record or transcript notations that may be used based on university policy and individual circumstances.

Campus Repeat Policy

The following students are required to follow the new repeat policy:

- All new freshmen who begin at UMCP Fall 1990 and after.
- Transfer students from schools other than Maryland Community Colleges who begin at UMCP Fall 1990 and after. This includes transfer students from another University of Maryland institution. (NOTE: There is one exception to this for students attending UMBC College of Engineering).

1. There is a limit to the number of times a student may repeat a course. Students may only once repeat a course in which they earned an A, B, C, D, F, P, S, W, I, NGR or Audit; they cannot be registered (after the schedule adjustment period) for any given course more than twice. However, a dean's office may grant an exception allowing an additional course repeat. In this case, students must present a plan for successfully completing the course. These exceptions will be counted against the limit for repeatable credits.
2. There is also a limit on the number of courses that a student may repeat. The number of repeatable credits depends on each student's class standing when admitted to UMCP. The total credits at entry will be based on acceptable transfer credit, advanced placement, CLEP credits, etc. The following table outlines the limits:

Credits at Entry*	Class Standing	Repeatable Credits
0-27	Freshman	18
28-55	Sophomore	14
56-85	Junior	10
86 +	Senior	06

*Credits on entry will be based on **acceptable** transfer credit.

Under very unusual circumstances, a student may obtain an exception to these limitations by appealing to the Vice President, for Academic Affairs/Provost.

3. The grade point average will include all course attempts that result in a grade of A, B, C, D, or F. However, to help freshmen and transfer students adjust to the UMCP campus, the following two exceptions allow for the cumulative GPA to be calculated so that only the higher grade is included:
   - When the original registration of the repeated course is taken within the student's first semester at UMCP, or
   - When the original registration of the repeated course is attempted within the student's first 24 credit hours attempted (including transfer credits) or within the semester during which the student reaches the 24th credit hour attempted.
4. Any grade earned in prior attempts of a repeated course will appear on the student's transcript, regardless of whether the grade is dropped from, or averaged into, the cumulative grade point average.
5. Repeat by transfer — If a student repeats by transfer a course that was taken before or during the semester in which the student reaches 24 credits attempted (including transfer credits) and the transfer grade is higher, then the original grade in the course will be excluded from the GPA calculation.
   - If the course was taken after the semester in which the student reached 24 credits attempted then the transfer course will not replace the original grade in the GPA calculation. Special exceptions can be requested by the dean in unusual circumstances.

Repeat Policy Prior to Fall 1990:

1. The following students follow the old repeat policy:
   - Students who began at UMCP before the Fall 1990 semester (including students who enter UMCP for summer 1990).
   - Transfer students who began at a Maryland Community College before Fall 1990.
   - UMBC College of Engineering students who began before 1990.

The highest grade received in the repeated course is used to calculate the GPA. A student may repeat any course; however no student may be registered for a course more than three times.

If a student repeats a course in which he or she has already earned a mark of A, B, C, D, P, or S, the subsequent attempt shall not increase the total hours earned toward the degree. Only the highest mark will be used in computation of the student's cumulative average. Under unusual circumstances, the student's dean may grant an exception to this policy.

Duplicate course: Used to indicate two courses with the same course content. The second course is counted in the cumulative totals earned; both courses are counted in the cumulative attempted credit and in the calculation of grade point average unless an exception is made by the student's dean.

Non-applicable (Non-Appl): In all cases of transfer from one college to another at the University of Maryland at College Park, the dean of the receiving college, with the approval of the student, shall indicate which courses, if any, in the student's previous academic program are not applicable to his or her new program, and shall notify the Office of Records and Registration of the adjustments that are to be made in determining the student's progress toward a degree. Deletions may occur both in credits attempted and correspondingly in credits earned. This evaluation shall be made upon the student's initial entry into a new program, not thereafter. If a student transfers from one program to another, his or her record evaluation shall be made by the dean in the same way as if he or she were transferring colleges. If the student subsequently transfers to a third college, the dean of the third college shall make a similar initial adjustment; courses marked "nonapplicable" by the second dean may become applicable in the third program.

Excluded Credit (Excl Crd) - Excluded credit is noted when Academic Clemency has been granted.

Academic Clemency Policy

Undergraduate students returning to the University of Maryland at College Park after a separation of a minimum of five calendar years may petition the appropriate dean to have a number of previously earned grades and credits removed from the calculation of their cumulative grade point average. Up to sixteen credits and corresponding grades from courses previously completed at the University of Maryland at College Park will be removed from calculation of the grade point average and will not be counted toward graduation requirements. The petition for clemency must be filed in the first semester of return to the institution. Approval is neither automatic or guaranteed.

PROFICIENCY EXAMINATION PROGRAMS

The University of Maryland at College Park offers new, continuing, and returning students several opportunities to earn college credit by demonstrating achievement in a subject field through examination. College Park recognizes three proficiency examination programs for credit: Advanced Placement (AP), Departmental Proficiency Examination Program (Credit By Examination), and College Level Examination Program (CLEP). Undergraduate students may earn a total of up to one-half of the credits required for their degree through examination. Usually, this is no more than 60 credits. Students are responsible for consulting with the appropriate dean or advisor about the applicability of any credits earned by examination to a specific degree program. Students should also seek assistance in determining which UMCP courses duplicate credits earned for an examination. **Students will not receive credit for both passing an examination and completing an equivalent course.**

Advanced Placement (AP) Credit. For complete information about the applicability of AP exams and the assignment of credit, please see the Admissions chapter of this catalog.

Departmental Proficiency Examination (Credit by Examination). College Park Departmental Proficiency Examinations, customarily referred to as "credit by examination," are comparable to comprehensive final examinations in a course. Although the mathematics and foreign language departments receive the most applications for credit by examination, many departments will provide examinations for certain of their courses. Initial inquiry as to whether an examination in a specific course is available is best made at the academic department which offers the course in question.

If an examination for a course is available, the department will provide information regarding time and place, type of examination, and material which might be helpful in preparing for the examination. An undergraduate who passes a departmental proficiency examination is given credit and quality points toward graduation in the amount regularly allowed in the course, provided such credits do not duplicate credit obtained by some other means.

After making arrangements with the department, apply through the Undergraduate Advising Office, 1117 Hornbake, 314-8418.

Policies governing credit by examination:

1. The applicant must be formally admitted to the University of Maryland at College Park. Posting of credit earned, however, will be delayed until the student is registered.
2. Departmental Proficiency Examinations may not be taken for courses in which the student has remained registered at the University of Maryland at College Park beyond the Schedule Adjustment Period with a transcript notation of "W."
3. Departmental Proficiency Examinations may not be used to change grades, including Incompletes and Withdrawals.
4. Application for credit-by-examination is equivalent to registration for the course; however, the following conditions apply:
   a. A student may cancel the application at any time prior to completion of the examination with no entry on his/her permanent record. (Equivalent to the schedule adjustment period.)
   b. The instructor makes the results of the examination available to the student prior to formal submission of the grade. Before final submission of the grade, the student may elect not to have this grade recorded. In this case, a mark of W is recorded. (Equivalent to the drop period.)
   c. No examination may be attempted more than twice.
   d. The instructor must certify on the report of the examination submitted to the Office of Records and Registration that copies of the examination questions (or identifying information in the case of standardized examinations), and the student's answers have been filed with the Chair of the department offering the course.
5. If accepted by the student (see 4.b, above), letter grades earned through credit by examination are entered on the student's transcript, and are used in computing his/her cumulative grade point average. A student may elect to take a "credit by examination" "Pass-Fail" only if the credit fulfills an elective in the students degree program. **No College, major, field of concentration, or general education program requirement may be taken under the pass-fail option.** Please refer to the Pass-Fail policy under the "Records" section in this chapter.

College-Level Examination Program (CLEP)

The College-Level Examination Program (CLEP) recognizes college-level competence achieved outside the college classroom. Two types of CLEP tests are available: General Examinations, which cover the content of a broad field of study; and Subject Examinations, which cover the specific content of a college course. Credit can be earned and will be recognized by College Park for some CLEP General or Subject Examinations, provided satisfactory scores are attained. Credits earned under CLEP are not considered "residence" credit, but are treated as transfer credit.

CLEP exams are administered at CLEP testing centers throughout the country. The University of Maryland at College Park is a CLEP Test Center (Test Center Code #5814). To obtain an application or additional information, contact the CLEP Administrator in the Counseling Center, Room 0106A Shoemaker Hall, (314-7688), or write to CLEP, CN 6600, Princeton, New Jersey, 08541-6600.

Students who want to earn credit through CLEP must request their official score reports to be sent to the Office of Undergraduate Admissions, Mitchell Building, University of Maryland, College Park, MD 20742. (The UMCP Score Recipient Code is #5814.)

Policies governing CLEP are as follows:

1. A student must matriculate at College Park before CLEP credits are officially posted. The posting will not be done until a student has established a record.
2. Each institution of the University of Maryland System establishes standards for acceptance of CLEP exemptions and credits. Students must check with the institution to which they will transfer to learn if they will lose, maintain, or gain credit.
3. College Park will award credit for a CLEP examination
   (a) provided the examination was being accepted for credit here on the date the student took the examination, and
   (b) provided that the examination was not taken during a student's final thirty credits. The final thirty hours of credit are to be taken in residence unless prior approval has been granted by the student's dean.
4. **Credit will not be given for both completing a course and passing an examination covering substantially the same material.**
5. Furthermore, credit will not be awarded for CLEP examinations if the student has previously completed more advanced courses in the same field.
6. CLEP examinations posted on transcripts from other institutions will be accepted if the examination has been approved by College Park and the scores reported are equal to or higher than those required by this institution. If the transcript from the prior institution does not carry the scores, it will be the responsibility of the student to request Educational Testing Service to forward a copy of the official report to the Office of Admissions.

College Park awards credits for CLEP Examinations only as indicated on the chart provided in this catalog (if an examination is not listed, it is not accepted for credit at this institution).

If you have questions about the applicability of specific credit to your program, consult the list provided in this catalog or contact your Dean's Office.

TRANSFER CREDIT
(For Current UMCP Students)

The Records Office posts all transfer credit that would be acceptable to any of the degree programs at the University of Maryland at College Park. The dean of the college in which the student is enrolled determines which transfer credits are applicable to the student's degree program. In general, credit from academic courses taken at institutions of higher education accredited by a regional accrediting association will transfer, provided that the course is completed with at least a grade of C and the course is similar in content and level to work offered at College Park. The title of courses accepted for transfer credit will be noted on the student's record; however, the grade will not. Grades from transferred courses are not included in the UMCP grade point average calculation. See the chapter on Admissions in this catalog for additional information.

Courses Taken at Other Institutions While Attending the University of Maryland at College Park

1. **Courses taken at another institution** may not be credited toward a degree without approval in advance by the dean of the college from which the student expects a degree. The same rule applies to registration in the summer program of another institution. "Permission to Enroll in Another Institution" forms are available in the office of the student's dean. This form must be submitted and approved by the college for any course which will eventually be added to the College Park transcript.
2. **Courses taken at other University of Maryland Institutions**

   For students who began their attendance at the University of Maryland at College Park in fall 1989 or later, all coursework taken at any University of Maryland System (UMS) institution will be posted as transfer credit. For all students who attended College Park prior to fall 1989, courses taken at another University of Maryland Board of Regents institution (UMBC, UMAB, UMES, UMUC) prior to fall 1989 will be included in the cumulative GPA. Courses taken at any other institution may not be credited toward a degree without advance approval. See #1 above for information.
3. **UMS Concurrent Inter-Institutional Registration Program**

   College Park undergraduate students participating in the UMS Concurrent Inter-Institutional Registration Program may receive permission from their dean to have coursework count as resident credit. Students participating in this program must be enrolled full-time in a degree program at College Park for the semester in which these courses are taken.
4. **Consortium of Universities of the Washington Metropolitan Area** Courses taken through the Consortium are considered to be resident credit. See above under "Consortium" and see the Schedule of Classes for information.

CLEP EXAM TITLE	SCORE	CREDITS AWARDED	EQUIVALENT OR RELATED COURSES	APPLICABILITY MAJOR	CORE	USP	NOTES
GENERAL EXAMS							
NATURAL SCIENCE	489	6 Credits	LL Elective	No	No	No	
HUMANITIES							
Subscore II	50	3 Credits	LL Elective	No	No	No	Subscore II is the Literature subscore.
SOCIAL SCIENCE and HISTORY							
Subscore I	50	3 Credits	LL Elective	No	No	No	Subscore I is the Social Science subscore.
SUBJECT EXAMS							
BIOLOGY							
Gen. Biology	49	3 Credits	LL Elective	No	No	No	Students who receive CLEP credit in Biology and wish to take additional BIOL credit should enroll in BIOL 105.
CHEMISTRY							
Gen. Chemistry	48	3 Credits	LL Elective	No	No	No	Students who receive CLEP credit in Chemistry and wish to take additional CHEM credit should enroll in CHEM 103 or CHEM 103H.
ECONOMICS							
Intro. Macro	51-64	3 Credits	ECON 205	No	Yes	Yes	Credit will be given for either ECON 201 or ECON
	65	3 Credits	ECON 201	Yes	Yes	Yes	205 as a result of the introductory macro-economic
Intro Micro	51-64	3 Credits	ECON 105	No	Yes	Yes	examination, not both.
	65	3 Credits	ECON 203	Yes	Yes	Yes	Credit will be given for either ECON 203 or ECON 105 as a result of the introductory micro-economics examination, not both.
ENGLISH							
Analysis & Interpretation of Literature	—	None	None	No	No	No	**To receive credit for CLEP, and fulfill fundamental studies ENGL 101, students with satisfactory CLEP scores may submit portfolios of written work for evaluation to the Office of the Director of Writing Programs (3119 Campus Surge). Contact the Office for information about portfolio content (301-405-3771).
College Composition Essay**	51	3 Credits	See Note**	No	See Note**		
GOVERNMENT							
American Government	58	3 Credits	LL Elective	No	No	No	Lower level elective credit only
MATHEMATICS							
Calculus & Elem. Functions	50	6 Credits	MATH 140	No	Yes	Yes	For CORE, MATH 140 fulfills the Math & Formal Reasoning non-lab requirement; for USP, it fulfills
College Algebra	—	None	None	No	No	No	the Area B non-lab requirement. MATH 140 also
College Algebra/ Trigonometry	49	3 Credits	MATH 115	No	Yes	Yes	fulfills CORE and USP Fundamental Studies Math requirements. MATH 115 fulfills CORE and USP Fundamental Studies Math requirement.
PSYCHOLOGY							
Gen. Psychology	—	None	None	No	No	No	The Psychology Department awards no credit for this examination.
SOCIOLOGY							
Introd. Sociology	51	3 Credits	LL Elective	No	No	No	Sociology majors who receive credit for this exam will be exempt from SOCY 100. Other students who wish to fulfill either a CORE or USP requirement are encouraged to enroll in SOCY 105

Please Note: LL refers to courses at the lower (100 and 200) level. Any test not listed will not be accepted for credit at UMCP. Students may not receive credit both for CLEP courses and for equivalent UMCP courses or transfer courses. CLEP credit will be deleted in such cases. Applicable scores for a particular examination are those in effect when a student takes the exam. Contact your College Dean if you have questions.

REQUIREMENTS FOR RETENTION

Academic retention is based solely on grade point average (GPA). The significance of the cumulative grade point average (cumulative GPA) varies according to the number of credits attempted. A minimum of 120 credits of successfully completed (not I, F, or W) course credits is required for graduation in any degree curriculum.

Satisfactory Performance applies to those students with a cumulative GPA between 4.000 and 2.000.

Semester Academic Honors (Dean's List) will be awarded to a student who completes within any given semester twelve or more credits (excluding courses with grades of P and S) with a semester GPA of 3.500 or higher. This notation will be placed on the individual's permanent record.

Unsatisfactory Performance: Students with a cumulative GPA of less than 2.000 fall into three categories: Unsatisfactory Performance, Academic Warning and Academic Dismissal. The notations Academic Warning and Academic Dismissal will be placed on the student's permanent record. The cumulative GPA that defines each of the categories varies according to the credit level as noted below:

GPA Retention Levels

Credit Level	Unsatisfactory Performance	Academic Warning	Academic Dismissal
0-13	1.290-1.999	0.230-1.289	0.000-0.229
14-28	1.780-1.999	1.280-1.779	0.000-1.279
29-56	1.860-1.999	1.630-1.859	0.000-1.629
57-74	1.940-1.999	1.830-1.939	0.000-1.829
75-more	——	1.940-1.999	0.000-1.939

1. Credit level: Courses with grades of A, B, C, F, P, S and transfer credit from other institutions, Advanced Placement, CLEP and other similar tests in which credit is given.
2. Computation of GPA: GPA is computed by dividing the total number of quality points accumulated in courses for which a grade of A, B, C, D, or F has been assigned by the total number of credits attempted in those courses. Courses for which a mark of P, S, I or NGR has been assigned are not included in computing the GPA. Each letter grade has a numerical value: A = 4; B = 3; C = 2; D = 1; F = 0. Multiplying this value by the number of credits for a particular course gives the number of quality points earned for that course.
3. Students with an unsatisfactory performance for any semester will be urged in writing to consult their advisors.
4. Students on academic warning will have this fact noted on their transcripts and will be urged in writing to consult with their advisors prior to the beginning of the next semester. Students who receive an academic warning in any semester will not be allowed either to add or drop courses or to register during the semester following the receipt of the academic warning without seeing an advisor.
5. Any student with sixty credits or more attempted and who thereafter received academic warning for two consecutive semesters will be academically dismissed. Students who are academically dismissed will have this action entered on their transcript.
6. No student transferring to the University of Maryland at College Park from outside the University of Maryland will be subject to Academic Dismissal at the end of the first semester as long as the student obtains a cumulative GPA of 0.23 or more. (A student who would otherwise be subject to Academic Dismissal will receive an Academic Warning.) Thereafter, such a student will be subject to the normal standards of academic progress. This provision does not apply to students reinstated or readmitted to College Park.
7. A student who has been academically dismissed and who is reinstated will be academically dismissed again if minimum academic standards are not met by the end of the first semester after reinstatement. (See Readmission and Reinstatement in the Admissions chapter of this catalog.)
8. Credits transferred, or earned during prior admissions terminating in academic dismissal or withdrawal and followed by readmission, will be applicable toward meeting credit requirements for a degree.
9. Under unusual circumstances, the Faculty Petition Board may set more rigorous requirements for the semester in which a reinstated student returns, or may allow a lengthened period (not to exceed two semesters) to reach the minimum or set academic standards.
10. Any appeal from the regulations governing academic warning or academic dismissal shall be directed to the Faculty Petition Board which shall be empowered to grant relief in unusual cases if the circumstances warrant such action.
11. See **Repeat Policy** to determine the effect of repeated courses in calculation of GPA.

Dismissal of Delinquent Students. The university reserves the right to request at any time the withdrawal of a student who cannot or does not maintain the required standard of scholarship, or whose continuance in the university would be detrimental to his or her health, or to the health of others, or whose conduct is not satisfactory to the authorities of the university. Additional information about the dismissal of delinquent students may be found in the Code of Student Conduct, Appendix C.

GRADUATION AND DEGREE REQUIREMENTS

The University of Maryland at College Park awards the following degrees: Bachelor of Arts, Bachelor of General Studies (no admission to program as of fall 1988), Bachelor of Music, Bachelor of Science, Master of Applied Anthropology, Master of Architecture, Master of Arts, Master of Business Administration, Master of Education, Master of Fine Arts, Master of Library Science, Master of Music, Master of Public Management, Master of Public Policy, Master of Science, Doctor of Education, Doctor of Musical Arts, and Doctor of Philosophy. Students in specified two-year curricula may be awarded certificates.

Graduation Applications

Each candidate for a degree or certificate must file a formal application with the Office of Records and Registrations. The deadline for application is the end of the schedule adjustment period for the semester in which the student plans to graduate, or at the end of the first week of the second summer session for August degrees.

In all cases, graduation applications must be filed at the beginning of the student's final semester before receiving a degree. If all degree requirements are not completed during the semester in which the graduation application was submitted, it is the responsibility of the student to file a new graduation application with the Office of Records and Registrations at the beginning of a subsequent semester when all degree requirements may be completed. The graduation application fee is a one-time, non-refundable charge. If a subsequent application is filed for the same degree, the fee will not be charged a second time.

Degree Requirements

The requirements for graduation vary according to the character of work in the different colleges, schools, departments and academic units. It is the responsibility of the colleges, schools, departments and other academic units to establish and publish clearly defined degree requirements. Responsibility for knowing and meeting all degree requirements for graduation in any curriculum rests with the student. Specific degree requirements are listed in this catalog under the college and/or department as appropriate.

Each student should check with the proper academic authorities no later than the close of the junior year to ascertain his or her standing with respect to advancement toward a degree. For this purpose, each student should be sure to retain a copy of the semester grade reports issued by the Office of Records and Registrations at the close of each semester.

1) Residency requirement — Final Thirty-Hour Rule
   a. All candidates for College Park degrees should plan to take their final thirty credits in residence since the advanced work of their major study normally occurs in the last year of the undergraduate program. Included in these thirty semester hours will be a minimum of fifteen semester hours in courses numbered 300 or above, including at least twelve semester hours required in the major field (in curricula requiring such concentrations).
   b. A student who at the time of graduation will have completed thirty hours in residence at College Park may, under unusual circumstances, be permitted to take a maximum of six of the final thirty credits of record at another institution. In such cases, written permission must be obtained in advance from the dean

of the academic unit from which the student expects to receive the degree. Exceptions beyond six credits will be made only under highly unusual circumstances; requests for an exception must be made through the Dean's office to the Office of the Vice President for Academic Affairs.

c. For students in the combined three-year, preprofessional programs, the final thirty hours of the ninety-hour program at the University of Maryland at College Park must be taken in residence.

2) Enrollment in Majors. A student must be enrolled in the major program from which he or she plans to graduate, when registering for the final fifteen hours of the baccalaureate program. This requirement also applies to the third year of the combined, preprofessional degree programs.

3) Credit Requirements. While several undergraduate curricula require more than 120 credits, no baccalaureate curriculum requires fewer than 120. No baccalaureate degree will be awarded in instances in which fewer than 120 credit hours have been earned.

It is the responsibility of each student to familiarize himself or herself with the requirements of specific curricula. The student is urged to seek advice on these matters from the departments, colleges, or the Office of Undergraduate Studies.

To earn a baccalaureate degree from the University of Maryland at College Park, a minimum of thirty credits must be taken in residence.

4) Grade Point Average. A minimum cumulative 2.00 grade point average is required for graduation in all curricula.

Second Degrees and Second Majors

a. **Second Degree Taken Sequentially.** A student who has completed requirements for and has received one baccalaureate degree and who wishes to earn a second baccalaureate degree from College Park must satisfactorily complete the requirements of the second degree and enough additional credits so that the total, including all applicable credits earned at College Park or elsewhere, is at least 150 credits. In no case, however, will a second baccalaureate degree be awarded to a student who has not completed thirty credits in residence at College Park. Approval of the second degree will not be granted when there is extensive overlap between the two programs.

b. **Second Degree Taken Simultaneously.** A student who wishes to receive simultaneously two baccalaureate degrees from College Park must satisfactorily complete a minimum of 150 credits (180 credits if one of the degrees is in Special Education). The regularly prescribed requirements of both degree programs must be completed. As early as possible and, in any case, no later than one full semester (preferably one year) before the expected date of graduation, the student must file with the departments or programs involved, as well as with the appropriate deans, formal programs showing the courses to be offered to meet the major, supporting area, college, and general education program requirements. If two colleges are involved in the double degree program, the student must designate which college is responsible for the maintenance of records. Approval of the second degree will not be granted when there is extensive overlap between two programs.

c. **Second Major.** A student who wishes to complete a second major concurrently with his or her primary major of record must obtain written permission in advance from the appropriate deans. As early as possible, but in no case later than one full semester before the expected date of graduation, the student must file with the departments or programs involved and with the appropriate deans, formal programs showing the courses to be offered to meet requirements in each of the majors and supporting areas as well as the college and general education program requirements. Approval will not be granted if there is extensive overlap between the two programs. Students enrolled in two majors simultaneously must satisfactorily complete the regularly prescribed requirements for each of the programs. Courses taken for one major may be counted as part of the degree requirements for the other and toward the requirements for the general education requirements as appropriate. If two colleges are involved in the double major program, the student must designate which college is responsible for the maintenance of records.

COMMENCEMENT HONORS

Summa Cum Laude, Magna Cum Laude, and Cum Laude are the commencement honors for excellence in scholarship. Honors are awarded to students with a GPA equal to the highest two percent (Summa), the next highest three percent (Magna), and the following five percent (Cum laude) of the GPA distribution used in calculations for that semester. The GPA distribution shall be computed each semester from the GPAs of the three preceding classes of the student's degree-granting unit. To be eligible for this recognition, at least 60 semester hours must be earned at or transferred with a grade to College Park. No more than six credits taken pass/fail or satisfactory/fail shall count toward the 60-hour minimum. No student with an average less than 3.30 will be considered for a commencement honor. Because grades for a term generally are officially recorded after the term's graduation day, computation of the student's GPA will not include grades for courses taken during the student's final semester at College Park. However, the hours taken during that semester will apply toward the 60-hour requirement.

Election to Phi Beta Kappa

Organized in 1776, Phi Beta Kappa is the oldest and most widely respected academic honorary society in the United States. Invitation to membership is based on outstanding scholastic achievement in studies of the liberal arts and sciences. Student members are chosen entirely on the basis of academic excellence; neither extra-curricular leadership nor service to the community is considered. Election is held only once a year, in the spring semester.

The process for election to Phi Beta Kappa involves the annual review in March by a select committee of faculty members representing the humanities, social sciences and natural sciences. The committee reviews transcripts of all juniors and seniors with qualifying grade point averages (irrespective of the graduation month of such a student). Whether a student qualifies for membership in Phi Beta Kappa depends on the quality, depth and breadth of the student's record in liberal education courses. The final decision for election rests with the resident faculty members of Phi Beta Kappa. There is no application procedure for election to Phi Beta Kappa.

Requirements for selection to membership in the campus chapter of Phi Beta Kappa include:

1. Residence. At least 60 hours taken at the College Park campus of the University of Maryland.
2. Liberal Courses. For seniors, at least 90 hours in liberal courses in the arts and sciences (where "liberal" means academic, rather than professional or technical) at least 45 of which are at the College Park campus. For juniors, at least 75 total hours must be completed, at least 60 of which are liberal courses, of which at least 45 are at the College Park campus.
3. Required courses. One semester of mathematics, which must be fulfilled by college level credit hours. Two semesters of a foreign language, at the elementary level or above. Students in the College of Arts and Humanities may use fulfillment of that College's foreign language requirement to satisfy the Phi Beta Kappa requirement. The language requirement may also be satisfied by a proficiency examination or department certification; foreign students whose native language is not English are exempted from the Phi Beta Kappa language requirement. Students in the latter two categories who wish to be considered for admission to Phi Beta Kappa should notify the Phi Beta Kappa office in writing prior to March of the year of admission.
4. Grade Point Average. For seniors a grade point average of at least 3.5 in all liberal courses taken; for juniors a grade point average of at least 3.75 in such courses.
5. Distribution. Normally the credit hours presented for Phi Beta Kappa must contain at least nine liberal hours in each of the three areas of humanities, social sciences and natural sciences (including a laboratory science course). Students with more challenging courses and moderately high grade point averages are preferred by the committee to those with higher grade point averages but a narrow range of courses. Minimal qualifications in more than one area may preclude election to Phi Beta Kappa.

Recommended criteria include:

1. Regular grades (rather than pass/fail) in (a) mathematics and foreign language courses, and (b) distribution areas in which the number of courses taken is minimal.
2. Some traditional social sciences and humanities courses that require written essays and papers. (Note that internships may be counted as professional courses and not as liberal courses.)
3. Courses in at least two of the required areas to be taken at the College Park campus, especially if courses are transferred from other institutions without chapters of Phi Beta Kappa.

Meeting the above requirements does not guarantee election to Phi Beta Kappa. The judgment of the resident faculty members of Phi Beta Kappa on the quality, depth, and breadth of the student's record is the deciding factor in every case.

Any questions about criteria for election to Phi Beta Kappa (including equivalency examinations in foreign languages) should be directed to the Phi Beta Kappa Office, Room 0201 Energy Research Building, 405-7369.

UNIVERSITY OF MARYLAND AT COLLEGE PARK CODE OF ACADEMIC INTEGRITY (Approved by the Campus Senate February 13, 1989)

Introduction

The university is an academic community. Its fundamental purpose is the pursuit of knowledge. Like all other communities, the university can function properly only if its members adhere to clearly established goals and values. Essential to the fundamental purpose of the university is the commitment to the principles of truth and academic honesty. Accordingly, The Code of Academic Integrity is designed to ensure that the principle of academic honesty is upheld. While all members of the university share this responsibility, The Code of Academic Integrity is designed so that special responsibility for upholding the principle of academic honesty lies with the students.

Definitions

1. ACADEMIC DISHONESTY Any of the following acts, when committed by a student, shall constitute academic dishonesty:
   (a) CHEATING—intentionally using or attempting to use unauthorized materials, information, or study aids in any academic exercise.
   (b) FABRICATION—intentional and unauthorized falsification or invention of any information or citation in an academic exercise.
   (c) FACILITATING ACADEMIC DISHONESTY—intentionally or knowingly helping or attempting to help another to violate any provision of this code.
   (d) PLAGIARISM—intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise.

Responsibility to Report Academic Dishonesty

2. Academic dishonesty is a corrosive force in the academic life of a university. It jeopardizes the quality of education and depreciates the genuine achievements of others. It is, without reservation, a responsibility of all members of the campus community to actively deter it. Apathy or acquiescence in the presence of academic dishonesty is not a neutral act. Histories of institutions demonstrate that a laissez-faire response will reinforce, perpetuate, and enlarge the scope of such misconduct. Institutional reputations for academic dishonesty are regrettable aspects of modern education. These reputations become self-fulfilling and grow, unless vigorously challenged by students and faculty alike.

   All members of the university community students, faculty, and staff share the responsibility and authority to challenge and make known acts of apparent academic dishonesty. Faculty must undertake a threshold responsibility for such traditional safeguards as examination security and proctoring.

Honor Pledge

3. All applicants for admission to undergraduate or graduate programs at the University of Maryland College Park, as well as all students registering for courses, will be expected to sign an Honor Pledge as a condition of admission and at each registration. The wording of the pledge will be recommended by the Student Honor Council, for approval by the Campus Senate.

Procedures: Academic Dishonesty

4. Any member of the university community who has witnessed an apparent act of academic dishonesty, or has information that reasonably leads to the conclusion that such an act has occurred or has been attempted, has the responsibility to inform the Office of Judicial Programs promptly. The Office of Judicial Programs will then send a written report of the allegation to the Student Honor Council, the accused student, and the instructor teaching the course.
5. Upon receipt of a report of academic dishonesty, the Student Honor Council will assign the matter to three of its members for preliminary inquiry. Members of the Student Honor Council when acting in this capacity shall be designated Review Officers. In the event the report pertains to the conduct of a graduate student, then at least two Review Officers will be graduate students.
6. The Review Officers shall conduct a preliminary inquiry into the facts of the case in order to determine if there is reasonable cause to believe that an act of academic dishonesty has occurred, or has been attempted
7. University administrators and faculty members are expected to provide reasonable assistance to the Review Officers, and to permit access to pertinent student papers or examinations, as determined by the Vice President for Academic Affairs. The Review Officers shall be advised by the Director of Judicial Programs.
8. If, after consultation with the Director of Judicial Programs:
   (a) a majority of Review Officers determine that an act of academic dishonesty did not occur, or was not attempted, the council will inform the student and the course instructor of its finding; or
   (b) if a majority of Review Officers determine that there is reasonable cause to believe that an act of academic dishonesty did occur, or was attempted, they will forward a written referral containing a statement of facts and their rationale to the Student Honor Council.
9. Upon receipt of a written referral from the Review Officers, the Student Honor Council shall:
   (a) convene an Honor Board to resolve the matter through an Honor Review. The Board will be selected in the manner described in Paragraph 13, below.
   (b) Appoint one of the Review Officers or the Campus Advocate to serve as the Presenter of the case. The responsibilities of the Presenter are more full described in Paragraph 11, below.
10. The meetings and deliberations of the Review Officers and of the Student Honor Council shall be privileged and confidential.
11. The principal responsibilities of the Presenter are:
   (a) to prepare a formal Charge of Academic Dishonesty, including the identity of the complaining party, and deliver it to the student and the Honor Board. The student will be deemed to have received such notice on the date of personal delivery, or if certified mail is used, on the date of delivery at the most recent address provided to the university by the student;
   (b) to inform the complaining party of the actions being taken;
   (c) to present the evidence and analysis upon which the Charge is based to the Honor Board during the Honor Review;
   (d) to perform such other duties as may be requested by the Student Honor Council or the Honor Board.
12. The Charge of Academic Dishonesty serves to give a student a reasonable understanding of the act and circumstances to be considered by the Honor Board, thereby placing the student in a position to contribute in a meaningful way to the inquiry. It also serves to provide initial focus to that inquiry. It is not, however, a technical or legal document, and is not analogous to an indictment or other form of process. The charge may be modified as the discussion proceeds, as long as the accused student is accorded a reasonable opportunity to prepare a response.

Procedures: Resolution by an Honor Review

13. An Honor Review is conducted by an Honor Board. The Board is convened by the Student Honor Council acting for the Vice President for Academic Affairs. It must consist of six persons, five of whom will be voting members. Determinations of the Honor Board will be by a majority vote (three votes or more). Honor Boards are selected as follows:
   (a) three students selected by the Student Honor Council from among its members. In the event the student accused of academic dishonesty is a graduate student, then at least two of the student members shall be graduate students. No person who served as a Review Officer may serve on a factually related Honor Board.

(b) Two faculty members selected in accordance with procedures established by the Vice President for Academic Affairs. In the event the student accused of academic dishonesty is a graduate student, then at least one of the persons selected shall be a regular member of the Graduate Faculty

(c) The Honor Board shall have one non-voting member, who shall serve as the Presiding Officer. The Presiding Officer may be a student, faculty, or staff member of the university. The Presiding Officer will be selected by the Director of Judicial Programs.

14. If the Vice President for Academic Affairs determines that the Student Honor Council or a Student Honor Board cannot be convened within a reasonable period of time after an accusation is made, the Vice President or a designee may review the case. If there is reasonable cause to believe that an act of academic dishonesty has occurred or has been attempted, the Vice President or designee will convene an ad hoc Honor Board by selecting and appointing two students and one faculty/staff member. Whenever possible, student members of ad hoc honor boards shall be members of the Student Honor Council. A non-voting presiding officer shall be appointed by the Director of Judicial Programs. If Review Officers cannot be appointed in accordance with Part Five of this Code, the Campus Advocate or another person designated by the Vice President for Academic Affairs will serve in that capacity.

15. The purpose of an Honor Review is to explore and investigate the incident giving rise to the appearance of academic dishonesty, to reach an informed conclusion as to whether or not academic dishonesty occurred, and to make a recommendation to the Dean. In keeping with the ultimate premise and justification of academic life, the duty of all persons at an Honor Review is to assist in a thorough and honest exposition of all related facts.

The basic tenets of scholarship—full and willing disclosure, accuracy of statement, and intellectual integrity in hypothesis, in argument and in conclusion—must always take precedence over the temptation to gain a particular resolution of the case. An Honor Review is not in the character of a criminal or civil legal proceeding. It is not modeled on these adversarial systems; nor does it serve the same social functions. It is not a court or tribunal. Rather, it is an academic process unique to the community of scholars that comprise a university.

16. The role of the Presiding Officer is to exercise impartial control over the Honor Review in order to achieve an equitable, orderly, timely and efficient process. The Presiding Officer is authorized to make all decisions and rulings as are necessary and proper to achieve that end, including such decisions and rulings as pertain to scheduling and to the admissibility of evidence. If in the judgment of the Presiding Officer there is reasonable cause to question the impartiality of a board member, the Presiding Officer will so inform the Honor Council, which will reconstitute the board.

17. The Presiding Officer will select the date, time and place for the Honor Review, and notify the student in writing a minimum of ten (10) days prior to the review.

18. The sequence of an Honor Review is necessarily controlled by the nature of the incident to be investigated and the character of the information to be examined. It thus lies within the judgment of the Presiding Officer to fashion the most reasonable approach. The following steps, however, have been found to be efficient, and are generally recommended:

(a) The Presenter, and then the student, summarize the matter before the Honor Board, including any relevant information or arguments.

(b) The Presenter, and then the student, present and question persons having knowledge of the incident, and offer documents or other materials bearing on the case. The Presenter, the student, and all members of the Honor Board may question any person giving testimony.

(c) The members of the Honor Board may ask the Presenter or the student any relevant questions. The members may also request any additional material or the appearance of other persons they deem appropriate.

(d) The Presenter, and then the student, should make brief closing statements.

(e) The Honor Board meets privately to discuss the case, and reaches a finding by a majority vote.

(f) The Honor Board will not conclude that a student has attempted or engaged in an act of academic dishonesty unless, after considering all the information before it, a majority of members believe that such a conclusion is supported by clear and convincing evidence. If this is not the case, the Honor Board will dismiss the charge of academic dishonesty in favor of the student with a finding that an attempt or act of academic dishonesty "did not occur", or that it was "not proven", whichever more accurately describes the result of its investigation. The student would then be notified in writing of the decision to dismiss the charge.

(g) If the Honor Board finds the student has engaged in an act of academic dishonesty, both the Presenter and the student may recommend an appropriate penalty. Pertinent documents and other material may be offered. The Honor Board then meets privately to formulate a Recommendation. The recommendation of the Honor Board will be by a majority vote of its members.

(h) The Presiding Officer will provide the appropriate Dean with a written report of the Honor Board's findings and recommendations.

19. The Presiding Officer will attempt to ensure the following rules and points of order are observed:

(a) The student may be assisted by an adviser, who may be an attorney. The role of an adviser will be limited to:

I. Making brief opening and closing statements, as well as comments on an appropriate sanction.
II. Suggesting relevant questions which the Presiding Officer may direct to a witness;
III. Providing confidential advice to the student.

Even if accompanied by an adviser, the student must take an active and constructive role in the Honor Review. In particular, the student must fully cooperate with the Honor Board and respond to its inquiries without undue intrusion or comment by an adviser.

In consideration of the limited role of an adviser and of the compelling interest of the university to expeditiously conclude the matter, the work of an Honor Board will not, as a general practice, be delayed due to the unavailability of an adviser.

(b) A tape recording of the Honor Review will be maintained.

(c) Presence at an Honor Review lies within the judgment of the Presiding Officer. An Honor Review is a confidential investigation. It requires a deliberative and candid atmosphere, free from distraction. Accordingly, it is not open to the public or other "interested" persons. However, at the student's request, the Presiding Officer will permit a student's parents or spouse to observe and may permit a limited number of additional observers. The Presiding Officer may cause to be removed from the Honor Review any person, including the student or an adviser, who disrupts or impedes the investigation, or who fails to adhere to the rulings of the Presiding Officer. The Presiding Officer may direct that persons, other than the student and the Presenter, who are to be called upon to provide information, be excluded from the Honor Review except for that purpose. The members of the Honor Board may conduct private deliberations at such times and places as they deem proper.

(d) It is the responsibility of the person desiring the presence of a witness before an Honor Board to ensure that the witness appears. If necessary, a subpoena may be requested, in accordance with Part 32 (b) of the Code of Student Conduct. Because experience has demonstrated that the actual appearance of an individual is of greater value than a written statement, the latter is discouraged and should not be used unless the individual cannot or reasonably should not be expected to appear. Any written statement must be dated, signed by the person making it, and witnessed by a university employee. The work of an Honor Board will not, as a general practice, be delayed due to the unavailability of a witness.

(e) An Honor Review is not a trial. Formal rules of evidence commonly associated with a civil or criminal trial may be counterproductive in an academic investigatory proceeding, and shall not be applied. The Presiding Officer will accept for consideration all matters which reasonable persons would accept as having probative value in the conduct of their affairs. Unduly repetitious, irrelevant, or personally abusive material should be excluded.

20. If the Honor Board finds that an attempt or act of academic dishonesty did occur, it shall recommend an appropriate sanction. The normal sanction shall be a grade of XF in the course, but the Honor Board may recommend a lesser or more severe sanction. Generally, acts involving advance planning, falsification of papers, collaboration with others, or some actual or potential harm to other students will merit a severe sanction, i.e

suspension or expulsion, even for a first offense. An attempt to commit an act shall be punished to the same extent as the consummated act.

21. The finding of the Honor Board will be final and not subject to review. The Board's sanction recommendation is advisory to the Dean. If the Dean modifies the Honor Board's recommendation, the Dean will provide written reasons to the Honor Board.

Procedures: Action by the Dean, Instructor, Vice President, President

22. If the Honor Board finds that an attempt or act of academic dishonesty did occur, then the Dean will provide the student a copy of the Board's findings and recommendations, by personal delivery or certified mail. The student may submit a written appeal to the Dean concerning the Honor Board's recommendation within ten (10) days after the student receives the Board's findings and recommendations. The student will be deemed to have received such findings and recommendations on the date of personal delivery, or if certified mail is used, on the date of delivery at the last address provided to the university by the student.
23. If the Dean awards the student a grade, including the grade of "XF", or fashions an academic requirement, the decision constitutes the final and conclusive action of the university. If the Dean determines to suspend the student, then this will not be implemented until reviewed by the Vice President for Student Affairs (or designee). If the Dean determines to expel the student, then this will not be implemented until reviewed by the President (or designee). If the Dean determines to take an action not otherwise described above (e.g. a community service assignment), then this will not be implemented until reviewed by the Director of Judicial Programs. In each instance, the review shall be limited to ensuring the sanction is not grossly disproportionate to the findings of the Honor Board.

The Grade of "XF"

24. The grade of "XF" is intended to denote a failure to accept and exhibit the fundamental value of academic honesty. The grade "XF" shall be recorded on the student's transcript with the notation "failure due to academic dishonesty." The grade "XF" shall be treated in the same way as an "F" for the purposes of Grade Point Average, course repeatability, and determination of academic standing.
25. No student with an "XF" on the student's transcript shall be permitted to represent the university in any extracurricular activity, or run for or hold office in any student organization which is allowed to use university facilities, or which receives university funds.
26. A student may file a written petition to the Student Honor Council to have the grade of "XF" removed and permanently replaced with the grade of "F". The decision to remove the grade of "XF" and replace it with an "F" shall rest in the discretion and judgment of a majority of a quorum of the Council; provided that:
    (a) at the time the petition is received, at least twelve months shall have elapsed since the grade of "XF" was imposed; and,
    (b) at the time the petition is received, the student shall have successfully completed a non-credit seminar on academic integrity, as administered by the Office of Judicial Programs; or, for the person no longer enrolled at the university, an equivalent activity as determined by the Office of Judicial Programs, and,
    (c) the Office of Judicial Programs certifies that to the best of its knowledge the student has not been found responsible for any other act of academic dishonesty or similar disciplinary offense at the University of Maryland or another institution.
27. Prior to deciding a petition, the Honor Council will review the record of the case and consult with the Director of Judicial Programs. Generally, the grade of "XF" ought not to be removed if awarded for an act of academic dishonesty requiring significant premeditation. If the "XF" grade is removed, records of the incident may be voided in accordance with Parts 47 and 48 of the Code of Student Conduct. The decision of the Honor Council shall not be subject to subsequent Honor Council review for four years, unless the Honor Council specifies an earlier date on which the petition may be reconsidered. Honor Council determinations pertaining to the removal of the "XF" grade penalty may be appealed to the Vice President for Academic Affairs. If the Vice President removes the grade of "XF" from the student's transcript, the Vice President shall provide written reasons to the Honor Council.

The Student Honor Council

28. There shall be a Student Honor Council. The Honor Council is composed of twenty-five (25) full-time students, normally appointed in the spring for the following academic year, and who may each be reappointed for additional one-year terms.
29. The members of the Honor Council are appointed in the following manner:
    (a) The Deans of the Colleges of Agriculture; Arts and Humanities; Behavioral and Social Sciences; Business and Management; Computer, Mathematical and Physical Sciences; Education; Engineering; Human Ecology; Journalism; Life Sciences; Health and Human Performance; the Dean of the School of Architecture; and the Dean for Undergraduate Studies will each appoint one undergraduate student.
    (b) The Dean of the Graduate School will appoint seven graduate students.
    (c) A committee consisting of the Vice President for Academic Affairs, the Vice President for Student Affairs, the Chair of the Graduate Student Association, and the President of the Student Government Association will appoint the remaining members.
    (d) If a Dean or the Committee wishes to reappoint a member of the Council, the Dean or the Committee shall seek the recommendation of the Executive Committee of the Student Honor Council. The Council shall recommend reappointment only if the member has demonstrated a level of service and commitment to the functions and ideals of the Council that is exemplary.
30. A member must be in high academic standing (a cumulative G.P.A. of at least 3.0) at the university and have no history of disciplinary, academic, or criminal misconduct.
31. All council members are subject to the training and conduct requirements of Parts 25 and 26 of the Code of Student Conduct.
32. The Student Honor Council has the following responsibilities and authority:
    (a) To develop bylaws subject to approval by the university for legal sufficiency and consistency with the requirements of this Code, and the Code of Student Conduct.
    (b) To designate from its members students to serve as Review Officers, Presenters, and members of Honor Boards as specified in this Code. Appointment to these responsibilities will generally rotate in accordance with the bylaws of the Honor Council.
    (c) To consider petitions for the removal of the grade of "XF" from university records in accordance with Part 26 of this Code.
    (d) To receive complaints or reports of academic dishonesty from any source.
    (e) To assist in the design and teaching of the non-credit seminar on academic integrity and moral development, as determined by the Director of Judicial Programs.
    (f) To advise and consult with faculty and administrative officers on matters pertaining to academic integrity at the university.
    (g) To issue an annual report to the Campus Senate on academic integrity standards, policies, and procedures, including recommendations for appropriate changes.
33. The campus administration shall provide an appropriate facility, reserved for the primary use of the Honor Council, and suitable for the conduct of hearings. Clerical and secretarial assistance will also be provided.

Future Self Governance

34. Insofar as academic dishonesty is most immediately injurious to the student body, and because the student body is in a unique position to challenge and deter it, it is the intent of the university that ultimately this Code will evolve into one the provisions of which are marked by complete student administration. The Campus Senate shall review the operation of this Code during the 1992-93 academic year based in part on the annual reports of the Student Honor Council for the first three years of its operation. Consideration at that time should be given to introducing additional enforcement responsibilities and privileges characteristic of traditional honor systems at sister institutions, including the provision that only student members of Honor Boards may vote.

It is expected that faculty participation on the Honor Boards will continue, since the faculty has an important interest in academic integrity, and since faculty members will have insights that should be considered in the resolution of individual cases.

TERMS

AD HOC HONOR BOARD: board consisting of two students and one faculty member appointed by the Vice President for Academic Affairs, and a Presiding Officer appointed by the Director of Judicial Programs. [Part 14].

ACADEMIC DISHONESTY: see Part 1 of this Code.

CHARGE OF ACADEMIC DISHONESTY: a formal description of the case being considered by the Honor Board. [Part 12].

HONOR BOARD: body appointed by the Student Honor Council to hear and resolve a case of academic dishonesty. The board consists of five voting members (three student members of the Honor Council and two faculty members). [Part 13].

HONOR REVIEW: the process leading to resolution of an academic dishonesty case. The process is conducted by an Honor Board. [Parts 18-21].

PRESENTER: officer responsible for preparing the charge of academic dishonesty and presenting the case before the Honor Board. The presenter is appointed by the Honor Board from among the Review Officers, or is the Campus Advocate. [Part 11].

PRESIDING OFFICER: individual on the Honor Board responsible for directing proceedings during the Honor Review. The presiding officer is a non-voting member of the Honor Board selected by the Director of Judicial Programs. [Part 16].

QUORUM: two-thirds of the members of the Student Honor Council.

REVIEW OFFICERS: three members of the Student Honor Council assigned to make a preliminary inquiry into an allegation of academic dishonesty. [Part 5].

STUDENT HONOR COUNCIL: body of 25 students appointed by the various Deans and Vice Presidents, as well as by the President of the Student Government Association and the Chair of the Graduate Student Association.

Students accused of academic dishonesty should request a copy of the university document "Preparing for an Honor Review" Contact the Office of Judicial Programs at 314-8204. **TO REPORT ACADEMIC DISHONESTY, DIAL 314-8206 AND ASK FOR THE "CAMPUS ADVOCATE."**

' As used throughout this document, the term "Dean" refers to the Dean of the College in which the alleged academic dishonesty occurred, or, if the accused student is a graduate student, the Dean of the Graduate School.

CHAPTER 5

GENERAL EDUCATION

CORE LIBERAL ARTS AND SCIENCES STUDIES PROGRAM (CORE)

GENERAL EDUCATION PROGRAM AND REQUIREMENTS

Dean for Undergraduate Studies: Ira Berlin (Acting)
2130 Mitchell Building, 405-9354

To earn a baccalaureate degree at the University of Maryland at College Park, all students complete both a major course of study and a campus-wide general education program.

The CORE Liberal Arts and Sciences Studies Program (CORE) has been the required general education program at UMCP since Fall, 1990. The CORE Program must be completed by all students entering UMCP in May 1990 and thereafter who have earned eight or fewer credits from UMCP or any other college. Students who enter UMCP with nine or more credits earned before May 1990 from UMCP or any other college may complete their general education requirements under the University Studies Program (USP). (See USP below.) Advanced Placement (AP) and other examination-based credits will not be considered in these determinations.

A liberal education is at the heart of a civil society.
--A. Bartlett Giamatti, former President of Yale University and Commissioner of Baseball

A university is a unique organization in human society: we are the most prolific source of new knowledge, and we are the repository of the best that has been thought and created over the centuries. Plan now to take an active role in all your classes--get to know your professor, ask questions in class, be an involved participant in learning.
--From the Dean's letter to UMCP students

--Kathryn Mohrman, President of Colorado College
and former Dean for Undergraduate Studies, University of Maryland

The Purpose of General Education

Participation in a democratic society requires more than the central instruction provided by one major field of study. In our world of rapid economic, social, and technological change, a strong and broadly-based education is essential.

General education helps students achieve the intellectual integration and awareness they need to meet challenges in their personal, social, political, and professional lives. General education courses introduce the great ideas and controversies in human thought and experience. These courses provide the breadth, perspective, and rigor that allow UMCP graduates to claim to be "educated people."

Most Americans change their careers three times during their lifetime. A solid general education provides a strong foundation for the life-long learning that makes career-change goals attainable.

General Education at UMCP =CORE Liberal Arts and Sciences Studies

CORE makes up about one third of your undergraduate courses.
CORE helps you choose or change your major and the shape of your whole life by introducing you to new ways of viewing yourself and the world around you.
CORE offers one of the best opportunities you will ever have to explore different fields of study.

GET THE MOST OUT OF CORE

- **PLAN** ahead and see an academic advisor regularly.
- **INVEST** in yourself; select CORE courses that will add to your understanding and appreciation of social, cultural, national, and international issues in the years ahead.

CORE LIBERAL ARTS AND SCIENCES STUDIES PROGRAM (CORE)

The CORE Program strategically builds a sound skill and knowledge base over the student's four years of baccalaureate study and represents a third of the total academic work completed for graduation.

At UMCP, the CORE Program has four major components:

FUNDAMENTAL STUDIES build competence and confidence in basic writing and mathematics. Mastery of these basics greatly enhances success both during and after college. Students begin fulfilling Fundamental Studies requirements in their first year at UMCP.

DISTRIBUTIVE STUDIES introduce broad areas of learning in many disciplines. Through these courses, students explore different kinds of knowledge and the very nature of scholarship in the humanities, arts, natural sciences, mathematics, social sciences, and history. Students generally pursue Distributive Studies in the first two years of their coursework.

ADVANCED STUDIES intensify the exploration begun with Distributive Studies. Advanced Studies courses encourage students to reflect upon the ways in which people in disciplines outside their majors approach contemporary social and ethical problems. Student take Advanced Studies courses in their junior and senior years.

HUMAN CULTURAL DIVERSITY encourages all members of our diverse undergraduate community to learn about attitudes and cultures different from their own. Students may complete the Cultural Diversity requirement at any time before graduation.

CORE Program Outline

Courses used to fulfill CORE Requirements:

- MUST be selected from the approved CORE course list.
- MAY also be used to satisfy college, major, and/or supporting area requirements if the courses also appear on CORE Fundamental or Distributive Studies lists.
- MAY NOT be taken on a Pass-Fail basis.

I. CORE Fundamental Studies three courses required:

1. **<u>One course in Introduction to Writing</u> (Must be attempted within the first thirty credits; must be passed within the first 60 credits.)**

Approved CORE Introduction to Writing Courses:
(Select the appropriate course based on requirements listed.)

ENGL 101	Introduction to Writing
ENGL 101A	Introduction to Writing (Must be taken if student has TSWE [SAT verbal subtest] score below 330)
ENGL 101H	Introduction to Writing (Honors Students)
ENGL 101X	Introduction to Writing (Students for whom English is a second language may register for ENGL 101X instead of ENGL 101. To register for ENGL 101X, a student must present one of the following: (1) 550 on the TOEFL, **OR** (2) 220 on the Comprehensive English Language Test (CELT) administered at the College Park campus by the Maryland English Institute (MEI), **OR** (3) successful completion of the MEI's semi-intensive course in English.

Note: Based on scores from either the TOEFL or CELT, students may be required to complete a program of English language instruction for non-native speakers through the MEI before being allowed to register for ENGL 101X.

Exemptions from Introduction to Writing Requirement:

- SAT verbal score 600 or above; OR
- AP English score of 4 or 5

2. **<u>One course in Mathematics</u> (Must be attempted within the first thirty credits; must be passed within the first 60 credits.)**

Approved CORE Fundamental Studies Mathematics Courses:

MATH 110 Elementary Mathematical Models, or
MATH 115 Pre-calculus, or
Any 100 or 200 level MATH or STAT course <u>except</u> MATH 210, and MATH 211

Exemptions from Mathematics Requirement:

- SAT Math score 600 or above; **OR**
- College Board Achievement Test in Mathematics, Level I or II, score of 600 or above; **OR**
- AP score of 3 or above in Calculus AB or BC; **OR**
- Any CLEP Subject Examination in Mathematics score 60 or above.

3. One course in Professional Writing (Taken after reaching junior standing (at least 56 credits).)

Approved CORE Professional Writing Courses:
(Select the appropriate course based on requirements listed.)

ENGL 391	Advanced Composition
ENGL 391H	Advanced Composition (Honors Students)
ENGL 391X	Advanced Composition (English as a Second Language [ESL])
ENGL 392	Advanced Composition (Pre-Law)
ENGL 393	Technical Writing
ENGL 393H	Technical Writing (Honors Students)
ENGL 393X	Technical Writing (ESL)
ENGL 393Z	Technical Writing (Includes computer assisted instruction)
ENGL 394	Business Writing
ENGL 395	Technical Writing (Pre-Med and Health careers)

Exemption from Professional Writing Requirement:

- Grade of "A" in ENGL 101 (NOT ENGL 101A or ENGL 101X), except for students majoring in Engineering.

Note: No exemption from the Professional Writing requirements will be granted for achievement on SAT verbal exam.

It is not enough to offer a smorgasbord of courses. We must insure that students are not just eating at one end of the table.
—A. Bartlett Giamatti

II. CORE DISTRIBUTIVE STUDIES REQUIREMENTS
nine courses required:

See list of approved CORE courses in Schedule of Classes.

1. Humanities and the Arts—**three courses required:**
   - One course from Literature list, and
   - One course from History/Theory of the Arts list, and
   - One more course from Literature, **OR** History/Theory of Arts, **OR** Humanities lists
2. Mathematics and the Sciences—**three courses required:**
   - Up to two courses from Physical Sciences list, and
   - Up to two courses from Life Sciences list, and
   - Up to one course from Mathematics/Formal Reasoning list

Notes: One course MUST include or be accompanied by a lab taken in the same semester. More than one lab course may be taken. All three courses may be from the science lists.

3. Social Sciences and History—**three courses required:**
   - One course from Social/Political History list, **AND**
   - Two course from Behavioral and Social Sciences list

Human history becomes more and more a race between education and catastrophe.
—H.G. Wells

III. CORE ADVANCED STUDIES
two courses required:

See list of approved CORE courses in the Schedule of Classes.

- One course from Analysis of Social and Ethical Problems list (outside the major; after 56 credits), **AND**
- One more course chosen from:
  (1) Analysis of Social and Ethical Problems list (outside the major; after 56 credits), **OR**
  (2) Development of Knowledge list (outside the major; after 56 credits), **OR**
  (3) Approved CORE Capstone list (within major; after 86 credits)

Notes: For CORE credit, Analysis of Social and Ethical Problems and Development of Knowledge courses must be taken outside the major and after reaching junior standing (56 credits). CORE Capstone courses must be taken within the major and after reaching senior standing (86 credits). Successful completion and defense of an honors thesis in either the University Honors or a Departmental Honors Program counts as CORE Capstone credit.

...All life is interrelated, whatever affects one of us, affects all.
—Martin Luther King, Jr.

IV. CORE HUMAN CULTURAL DIVERSITY
one course required:

See list of approved CORE Diversity courses in Schedule of Classes.

Cultural Diversity courses focus primarily on: (a) the history, status, treatment, or accomplishment of women or minority groups and subcultures; (b) non-Western culture, or (c) diversity issues or studies themselves as they relate to (a) and/or (b).

Note: A number of CORE Cultural Diversity courses also satisfy CORE Distributive Studies or CORE Advanced Studies requirements or a college, major, and/or supporting area requirement.

FOR COMPLETE CORE COURSE LISTS AND MORE INFORMATION CONSULT:

Schedule of Classes, revised each semester.

CORE Guide for Undergraduate Advisors updated each semester and revised annually (Copies are available at the Hornbake Library Reference Desk and in advising offices).

INFO on-line information system updated regularly (access through student Workstations at Maryland [WAM] account).

UNIVERSITY STUDIES PROGRAM (USP)

USP requirements preceded CORE General Education Program requirements. All students who entered UMCP before May 1990 with nine or more credits from UMCP or any other college entered under USP requirements. These students may choose to complete the CORE Program instead and should consult their academic advisors about the possible benefits of doing so. For detailed information about USP requirements, see the current Schedule of Classes and undergraduate catalogs dated 1992 and earlier.

MARYLAND PUBLIC COMMUNITY COLLEGE STUDENTS

For the purpose of determining which general education program is required (CORE or USP), students transferring to UMCP from Maryland Public Community Colleges shall be treated as if their registration dates were concurrent with enrollment at the University of Maryland at College Park.

STATUTE OF LIMITATIONS FOR PREVIOUS GENERAL EDUCATION PROGRAMS AT UMCP (GEP, GUR, USP)

Undergraduate students returning or transferring to the College Park campus after August 1987 will no longer have the option of completing general education requirements under the older General Education Program (GEP) or the General University Requirements (GUR).

Thereafter, following any substantive change in general education requirements (like the change in Fall 1990 from USP to CORE), undergraduate students returning or transferring to College Park after a separation of five continuous years must follow the requirements in effect at the time of re-entry. Exceptions may be granted to those students who at the time of separation had completed 60% of the general education requirements then in effect.

CHAPTER 6

THE COLLEGES AND SCHOOLS

COLLEGE OF AGRICULTURE (AGRI)

1224 Symons Hall, 405-2080

Dean: Paul H. Mazzocchi (Interim)

Today's agriculture is a highly complex and extremely efficient industry that involves supplies and services used in agricultural production, and the marketing, processing and distribution of products to meet consumers' needs and wants. The mission of the College of Agriculture includes the application of knowledge to the solution of some of the world's most critical problems concerning adequate amounts and quality of food and the quality of the environment in which we live. The college strives to provide an agricultural education that fits all the needs of today's advanced science of agriculture.

The College of Agriculture offers educational programs with a broad cultural and scientific base, emphasizing the precise knowledge graduates must employ in the industrialized agriculture of today. Students are prepared for careers in agriculturally related sciences, technology and business. Course programs in specialized areas may be tailored to fit the particular needs of the individual student. Previous training in agriculture is not a prerequisite for study in the College of Agriculture; students with rural, suburban and urban backgrounds comprise the student body. Graduates of the College of Agriculture have an appropriate educational background for careers and continued learning after college in business, industry, production, teaching, research, extension, and many other professional fields.

The original college of the University of Maryland at College Park was chartered in 1856. The College of Agriculture has a continuous record of leadership in education since that date. It became the beneficiary of the Land Grant in 1862. The College of Agriculture continues to grow and develop as part of the university system, providing education and research activities enabling us to use our environment and natural resources to best advantage while conserving basic resources for future generations.

The College of Agriculture offers the following majors and programs of study:

Agricultural and Resource Economics
Agricultural Engineering
Agricultural Sciences, General
Agronomy
Animal Sciences
Food Science Program
Horticulture
Human Nutrition and Food Systems
Institute of Applied Agriculture (two-year program)
Natural Resources Management Program
Combined Degree: College of Agriculture and Veterinary Medicine

Advantage of Location and Facilities

Educational opportunities in the College of Agriculture are enhanced by the proximity of several research units of the federal government. Teaching and research activities in the college are conducted with the cooperation of scientists and professional people in government positions. Of particular interest are the Agricultural Research Center at Beltsville, the National Agricultural Library, and the U.S. Department of Agriculture Headquarters in Washington, D.C.

Instruction in the basic biological and physical sciences, social sciences and engineering principles is conducted in well-designed classrooms and laboratories. The application of basic principles to practical situations is demonstrated for the student in numerous ways. For example, modern greenhouses are available for teaching and research on a wide variety of plants, plant pests, and crop cultural systems. Dairy and beef cattle and flocks of poultry are available for teaching and research purposes.

In addition to on-campus facilities, several operating research farms, located in Central, Western, and Southern Maryland and on the Eastern Shore, support the educational programs in agriculture by providing locations where important crops, animals, and poultry can be grown and maintained under practical and research conditions.

Requirements for Admission

For students entering the College of Agriculture it is recommended that their high school preparatory course include: English, 4 units; mathematics, 3 units; biological and physical sciences, 3 units; and history or social sciences, 2 units. Four units of mathematics should be elected by students who plan to major in agricultural engineering.

Degree Requirements

Students graduating from the college must complete at least 120 credits with an average of 2.0 in all courses applicable toward the degree. Included in the 120 credits must be the following:

1. CORE (40 credits)
2. College Requirements
   a. Chemistry: Any one course of three or more credits in chemistry numbered 102 or higher.
   b. Mathematics or any course that satisfies the CORE Program
   c. Biological Sciences: Any one course carrying three or more credits selected from offerings of the Departments of Botany, Entomology, Microbiology, or Zoology.

Courses marked "for non-science majors" cannot be used to satisfy degree requirements for any major in the College of Agriculture.

3. Requirements of the major and supporting areas, which are listed under individual program headings in Chapter 7

Required Courses

Courses required for students in the College of Agriculture are listed in each curriculum. The program for the freshman year is similar for all curricula. Variations in programs will be suggested based on students' interests and test scores.

Typical Freshman Program—College of Agriculture

	Semester Credit Hours I	II
ENGL 101—Introduction to Writing	3	
BIOL 105—Principles of Biology I	4	
MATH		3
ANSC 101—Principles of Animal Science	3	
BIOL 106—Principles of Biology II		4
AGRO 101	4	
ENAG 200		2
SPCH 107—Technical Speech Communication		3
CORE Program Requirement		3
Elective	1	
Total	**15**	**15**

Advising

Each student in the College of Agriculture is assigned to a faculty advisor. Advisors normally work with a limited number of students and are able to give individual guidance. Students entering the freshman year with a definite choice of curriculum are assigned to departmental advisors for counsel and planning of all academic programs. Students who have not selected a definite curriculum are assigned to a general advisor who assists with the choice of electives and acquaints students with opportunities in the curricula in the College of Agriculture and in other units of the university.

Financial Assistance

A number of scholarships are available for students enrolled in the College of Agriculture. These include awards by the Agricultural Development Fund, Arthur M. Ahalt Memorial Scholarship, Capitol Milk Producers Cooperative, Inc., George Earle Cook, Jr. Scholarship Fund, Dr. Ernest N. Cory Trust Fund, Ernest T. Cullen Memorial Scholarship, Dairymen, Inc. Scholarship, Delmarva Corn and Soybean Scholarship, Delaware-Maryland Plant Food Association, Mylo S. Downey Memorial Scholarship, James R. Ferguson Memorial Scholarship, Forbes Chocolate Leadership Award, Goddard Memorial Scholarship, Manasses J. and Susanna Grove Memorial Scholarship, Joe E. James Memorial Award Fund, The Kinghorne Fund, Gary Lee Lake Memorial Scholarship, Maryland Holstein-Freisian Association Scholarship, Maryland Turfgrass Association, Maryland State Golf Association, Maryland and Virginia Milk Producers, Inc., Dr. Ray A. Murray Scholarship Fund, Paul R. Poffenberger Scholarship Fund, R. J. Reynolds Tobacco Scholarship, Ralston Purina Company, J. Homer Remsberg Memorial Scholarship, The Schluderberg Foundation, The Ross and Pauline Smith Fund for Agriculture, Southern States Cooperative, Inc., The David N. Steger Scholarship Fund, T. B. Symons Memorial Scholarship, Veterinary Science Scholarship, Winslow Foundation, and The Nicholas Brice Worthington Scholarship Fund.

Honors

An Honors Program is approved for majors in Agricultural and Resource Economics. The objective of the Honors Program is to recognize superior scholarship and to provide opportunity for excellent students to broaden their perspective and to increase the depth of their studies. The programs in Honors are administered by departmental Honors committees. Students in the College of Agriculture who are in the top 20 percent of their class at the end of their first year may be considered for admission into the Honors Program. Of this group up to 50 percent may be admitted.

Sophomores or first semester juniors will be considered upon application from those students in the upper 20 percent of their class. While application may be made until the student enters the sixth semester, early entrance into the program is recommended. Students admitted to the program enjoy certain academic privileges.

Student Organizations

Students find opportunity for varied expression and growth in the several voluntary organizations sponsored by the College of Agriculture. These organizations are Agriculture and Resource Economics Club, Agronomy Club, American Society of Agricultural Engineers, Animal Husbandry Club, Collegiate 4-H Club, Collegiate Future Farmers of America, Forestry Club, Equestrian Association, Food Science Club, Horticultural Club, INAG Club, Poultry Science Club, Soil Conservation Society of America, The University of Maryland Student Chapter, and Veterinary Science Club.

Alpha Zeta is a national agricultural honor fraternity. Members are chosen from students in the College of Agriculture who have attained the scholastic requirements and displayed leadership in agriculture.

The Agricultural Student Council is made up of representatives from the various student organizations in the College of Agriculture. Its purpose is to coordinate activities of these organizations and to promote work that is beneficial to the college.

Combined Degree Curriculum—College of Agriculture and Veterinary Medicine

Students enrolled in the College of Agriculture who have completed at least ninety hours, including all university and college requirements, may qualify for the Bachelor of Science degree from the University of Maryland, College of Agriculture, upon successful completion in an accredited College of Veterinary Medicine of at least thirty semester hours. It is strongly recommended that the ninety hours include credits in animal science.

Combined Degree Requirements

	Semester Credit Hours
CORE Program Requirements	40
ANSC 221—Fundamentals of Animal Production	3
ANSC 201—Genetics	3
ANSC 203—Feeds & Feeding	3
BIOL 105—Principles of Biology I	4
BIOL 106—Principles of Biology II	4
Mathematics (must include at least 3 credits of Calculus)	6
CHEM 103—General Chemistry I	4
CHEM 113—General Chemistry II	4
CHEM 233—Organic Chemistry I	4
CHEM 243—Organic Chemistry II	4
PHYS 121—Fundamentals of Physics I	4
PHYS 122—Fundamentals of Physics II	4
Biochemistry	3
Electives	10

*Includes eleven required credits listed above.

For additional information, please contact the Associate Dean, VMRCVM, 1203 Gudelsky Veterinary Center, University of Maryland, College Park, MD 20742, (301)935-6083.

VIRGINIA-MARYLAND REGIONAL COLLEGE OF VETERINARY MEDICINE—MARYLAND CAMPUS

College of Agriculture

1203 Gudelsky Veterinary Center, 405-6083

Professor and Associate Dean: Mohanty
Professor: Marquardt
Associate Professors: Dutta, Mallinson, Snyder, Stephenson
Assistant Professors: Carmel, Ingling, Samal, Sarmiento, Vakharia
Instructors: Bradley, Penny

The Virginia-Maryland Regional College of Veterinary Medicine is operated by the University of Maryland and the Virginia Polytechnic Institute and State University. Each year, thirty Maryland and fifty Virginia residents comprise the entering class of a four-year program leading to a Doctor of Veterinary Medicine (DVM).

The first three years are given at Virginia Polytechnic Institute and State University in Blacksburg, Virginia. The final year of instruction is given at several locations, including the University of Maryland at College Park.

A student desiring admission to the college must complete the pre-veterinary requirements and apply for admission to the professional curriculum. Admission to this program is competitive, and open to all Maryland residents. All Maryland residents' applications are processed at the Department of Veterinary Medicine, University of Maryland, College Park.

Institute of Applied Agriculture—Two-Year Program

The Institute of Applied Agriculture, a two-year, college-level program offered as an alternative to the four-year program, prepares students for specific occupations in technical agriculture.

The Institute offers three major programs with the following specialty areas:

I. Business Farming
   A. Farm Production and Management
   B. Agricultural Business Management

II. Ornamental Horticulture
   A. General Ornamental Horticulture
   B. Landscape Management
   C. Urban Forest Management

III. Turfgrass Management and Golf Course Management

The Business Farming program develops skills needed for farm operation or for employment in agricultural service and supply businesses such as feed, seed, fertilizer, machinery companies, and farmers' cooperatives.

Options in Ornamental Horticulture prepare students for employment in, or management of, greenhouses, nurseries, garden centers, landscape maintenance companies and tree care professions.

The Turfgrass Management program concentrates on the technical and management skills needed to work as a golf course superintendent, in commercial or residential lawn care companies, or in other turfgrass-related industries such as parks and cemeteries.

To enhance a student's occupational knowledge, the Institute requires completion of a Supervised Work Experience program, usually done in the summer between the first and second years.

A graduate of the Institute is awarded a Certificate in Agriculture specifying the student's major area of study. Graduation requires the successful completion of sixty credit hours of a recognized program option, completion of Supervised Work Experience, and a 2.00 cumulative grade point average.

Though designed as a two-year terminal program, the Institute does not restrict continuing education. In general, all Institute courses are transferable to the University of Maryland at College Park and the University of Maryland Eastern Shore. The extent to which the courses can be applied to a baccalaureate degree will depend on the individual department in which a student is planning to major.

Courses Common to All Programs

COMM I-1—Oral Communication	3
COMM I-2—Written Communication	3
AGMA I-1—Agricultural Mathematics	3
BOTN I-1—Introduction to Plant Science	3
AGRO I-1—Soils and Fertilizers*	3
AGRO I-11—Pesticide Use and Safety	2
AGEN I-1—Agricultural Mechanics	3
AGEC I-2—Business Law	3
AGEC I-4—Business Operations	3
AGEC I-8—Using Computers in Agriculture	2
AGEC I-10—Personnel Management	3
AGEC I-14—Supervised Work Experience	1
AGEC 1-15—Business Management	3

Courses for Farm Production and Agribusiness Management Majors

ANSC I-1—Introduction to Animal Science	3
ANSC I-2—Feeds and Feeding	3
ANSC I-3—Animal Health	3
ANSC 242—Dairy Production	3
ANSC I-8—Livestock Management	3
ANSC I-10—Seminar	1
ANSC 422—Meats	3
AGRO I-7—Grain and Forage Crop Production	4
AGRO I-12—Crop Production Practices	3
AGEC I-7—Agricultural Marketing	3
AGEC I-11—Farm Management	3

Courses for Ornamental Horticulture and Turfgrass Majors

HORT I-2—Woody Ornamentals	3
HORT I-3—Plant Propagation	3
HORT I-7—Greenhouse Management	2
HORT I-8—Arboriculture	2
HORT I-12—Floral Crop Production	2
HORT I-18—Woody Ornamentals II	2
HORT I-26—Landscape Design and Implementation	4
HORT I-27—Landscape Management	4
HORT 1-30—Vegetable Production Practices	2
ENTM I-2—Pests of Ornamental Plants	3
AGRO I-2—Turf Management	4
AGRO I-4—Golf Course Management I	3
AGRO I-5—Golf Course Management II	3
URFS I-1—Urban Forest Management	3
URFS I-2—I.P.M. Monitoring	2

For additional information, write: Director, The Institute of Applied Agriculture, 2123 Jull Hall, University of Maryland, College Park, MD 20742-2525, or call (301)405-4686.

SCHOOL OF ARCHITECTURE

Architecture Building, 405-6284

Professor and Dean: Steven W. Hurtt
Associate Dean: Stephen F. Sachs
Assistant to the Dean: Nancy Lapanne
Professors: Bennett, Etlin†, Fogle, Hill, Lewis, Loss, Schlesinger, Schumacher, Steffian
Associate Professors: Bechhoefer, Bovill, DuPuy, Vann
Assistant Professors: Bell, Drost, Gardner, Kelly, Gournay
Lecturers: McInturff, Stup, Wiedemann
†Distinguished Scholar-Teacher

The School of Architecture offers a four-year undergraduate program leading to the Bachelor of Science degree in architecture, and a graduate program leading to the degree, Master of Architecture. The undergraduate major in architecture is designed to minimize the time required to complete the curriculum leading to the professional degree, Master of Architecture.

Students receive rigorous and comprehensive instruction from a faculty whose members are active in professional practice or research. Many faculty members have distinguished themselves across the professional spectrum and represent different approaches to architectural design. Their individual areas of expertise include architectural design and theory, history, architectural archaeology, technology, urban design and planning, and historic preservation. Visiting critics, lecturers, and the Kea Distinguished Professor augment the faculty; together they provide students with the requisite exposure to contemporary realities of architectural design.

The B.S. degree in architecture will qualify graduates to pursue a career in any of a number of fields, such as construction, real estate development, public administration, or historic preservation, or to continue in graduate work in professional fields such as architecture, urban planning, or law.

Admission to Architecture

See the Admissions section in this catalog for general LEP admission policies.

Freshman Admission and the 45 Credit Review Most first-time entering freshmen will gain admission to the School of Architecture directly from high school, as allowed by space considerations within the School. Because space may be limited before all interested freshmen are admitted to the program, early application is encouraged. Freshmen admitted to the program will have access to the necessary advising through their initial semesters to help them determine if Architecture is an appropriate major for their interests and abilities.

Freshmen who are admitted directly to Architecture will be subject to a performance review by the time they have completed 45 credits. To meet the provisions of the review, these students must complete: (1) Fundamental Studies; (2) 60% of Distributive Studies; (3) ARCH 170, 220, and

242 with grades of B in each; (4) MATH 220, PHYS 121, and PHYS 122 with minimum grades of C in each and a combined GPA of 2.6 for the 3 courses; (5) three letters of recommendation; and (6) a portfolio review as specified by the School. Students who do not meet these requirements will not be allowed to continue in the LEP and will be required to select another major.

Transfer Admission. The following requirements affect new transfer students to the university as well as on-campus students hoping to change majors to Architecture. Admission of transfer students may be severely limited, and capacity is determined each year in accordance with the success of incoming freshmen.

In order to be admitted to Architecture, transfer students will be required to meet the following set of gateway requirements: (1) completion of Fundamental Studies; (2) completion of all Distributive Studies; (3) completion of ARCH 242 with a grade of B; (4) completion of MATH 220 and PHYS 122 with minimum grades of C and a combined average of 2.4; (5) successful review of a portfolio to assess drawing skills; and (6) attainment of a minimum cumulative GPA for all college-level work attempted. The required GPA is set each year and may vary from year to year depending upon available space. Contact the School of Architecture or the Office of Undergraduate Admission for the current GPA standard.

Appeals. Students who are unsuccessful in gaining admission to Architecture at the freshman or transfer level, and believe they have extenuating or special circumstances which should be considered, may appeal in writing to the Office of Undergraduate Admission. The student will be notified in writing of the appeal decision once it is made.

Students admitted to Architecture as freshmen who do not pass the 45 credit review but believe they have special circumstances which should be considered may appeal directly to the School.

For further information, contact the Counselor for Limited Enrollment Programs at 301-314-8378.

Curriculum Requirements

In the first two years of college, directly admitted students and those seeking to transfer into the School of Architecture should adhere to the following curriculum:

	Credit Hours
General Education (CORE) and Elective	28
ENGL 101—Introduction to Writing (CORE)	3
MATH 220—Elementary Calculus I (CORE)	3
ARCH 170—Introduction to the Built Environment (CORE)	3
MATH 221—Elementary Calculus II (recommended)	3
PHYS 121—Fundamentals of Physics I (CORE)	4
ARCH 220—History of Architecture I*	3
ARCH 242—Drawing I	2
PHYS 122—Fundamentals of Physics II (CORE)	4
ARCH 221—History of Architecture II	3
Total Credits	**56**

Curriculum Requirements

Bachelor of Science, Major in Architecture. If admitted after completing 56 credits, students are expected to complete the following requirements for a total of 120 credits:

	Credit Hours
Third Year	
ARCH 400—Architecture Studio I*	6
ARCH 410—Architectural Technology I	4
ARCH 4xx—Arch. History/Area A**	3
ARCH 401—Architecture Studio II	6
ARCH 411—Architectural Technology II	4
ARCH 343—Drawing II Line Drawing	3
ENGL 391—Advanced Composition	3
CORE Requirements	3
Total	32
Fourth Year	
ARCH 402—Architecture Studio III	6
ARCH 445—Visual Analysis of Architecture	3
ARCH 412—Architectural Technology III	4
ARCH 403—Architecture Studio IV	6
ARCH 413—Architectural Technology IV	4
CORE Requirements	3
One of the following	3
ARCH 460 Site Analysis & Design	
ARCH 450 Introduction to Urban Planning	
ARCH 454 Theories of Urban Form	
ARCH 4xx—Arch. History/ Area B**	3
Total	32
Total Credits	**120**

*Courses are to be taken in sequence as indicated by Roman numerals in course titles.
** Architecture history courses: Area A, ARCH 422, 423, 432, and 436 Area B, ARCH 433, 434, and 420.

Special Resources and Opportunities

The school is housed in a modern, air-conditioned building providing design workstations for each student, a large auditorium, and seminar and classroom facilities. A well-equipped woodworking and model shop, darkroom, a lab equipped with testing machines and various instruments used in studying the ambient environment, and computer terminal facilities are also provided. The Architecture Library, one of the finest in the nation, offers convenient access to a current circulating collection of over 24,000 volumes, 6,000 periodicals, and an extensive selection of reference materials. Rare books and special acquisitions include a collection relating to international expositions and the 11,000-volume National Trust for Historic Preservation Library. A visual resources facility includes a reserve slide collection of 250,000 slides on architecture, landscape architecture, urban planning, architectural science, and technology as well as audio-visual equipment for classroom and studio use.

The school provides learning experiences through CADRE Corporation, a nonprofit center for Architectural Design and Research, which provides an organizational framework for faculty and students to undertake contract research and design projects appropriate to the school's fundamental education mission. CADRE Corporation projects include building and urban design, urban studies, building technology, historic preservation, architectural archaeology, studies in energy conservation, or other work for which the school's resources and interests are uniquely suited.

Summer programs include the Caesarea Ancient Harbor Excavation Project (CAHEP), an ongoing land and underwater excavation in Israel at the harbor of Herod the Great at Caesarea Maritima. In addition, summer workshops for historic preservation are sponsored by the school each year in Cape May, New Jersey, a designated national historic landmark district, and Kiplin Hall in North Yorkshire, England. Students may earn direct credit doing hands-on restoration work and by attending lectures by visiting architects, preservationists, and scholars.

Course Code: ARCH

COLLEGE OF ARTS AND HUMANITIES (ARHU)

1101 Francis Scott Key Hall, 405-2088

Dean: Robert Griffith
Office of Student Affairs (405-2110)
Academic Advisors (405-2110)

The College of Arts and Humanities embraces a heterogeneous group of disciplines, all of which value the development of critical thinking, fluent expression in writing and speech, sensitivity to ethical and aesthetic standards, and a complex understanding of history and culture. Departments and programs in Arts and Humanities, while they have strong individual identities, are also involved in interdisciplinary studies. Thus students will find, for example, courses in the Department of English that

approach literature from political perspectives, courses in the Department of History that rely on feminist perspectives, courses in the Department of Art History that study African cultures and so on.

Examples of the special opportunities available to students in this richly variegated college are an exceptionally large slide library in the Art History Department, the Music Department's refurbished recital hall, the Pugliese Theatre for experimental drama, Improvisations Unlimited (a faculty-student dance group), the Computer Assisted Design and Development Laboratory, a biweekly foreign and art film series, a junior year abroad program in Nice, a year abroad program in Sheffield, and Honors programs in most departments. There are also special programs in women's studies, comparative literature, and the history and philosophy of science.

Preparation in the Arts and Humanities provides valuable background for careers in a broad range of fields. Students should be aware of the many eloquent testimonials from leaders of the nation's businesses, industry and government to the skills of oral presentation, written exposition, critical thinking, and analytic problem-solving nurtured in humanities courses. These skills are essential to a successful career in any number of different fields.

Entrance Requirements

Students wishing to major in one of the creative or performing arts are encouraged to seek training in the skills associated with such an area prior to matriculation. Students applying for entrance to these programs may be required to audition, present slides, or submit a portfolio as a part of the admission requirements.

Graduation Requirements

The following college requirements apply only to students earning Bachelor of Arts degrees from the College of Arts and Humanities. These requirements are in addition to or in fulfillment of campus and departmental requirements. For information concerning the Bachelor of Music in the Department of Music the student should consult a department advisor.

Distribution

A minimum of 45 semester hours of the total of 120 must be upper-level work (i.e., courses numbered 300-499).

Foreign Language

Language proficiency may be demonstrated in one of several ways:

(a) Successful completion of level 4 in one language or level 2 in each of 2 languages in high school, or
(b) Successful completion of a 12-credit sequence or of the intermediate level in college language courses, or
(c) Successful completion of a language placement examination in one of the campus language departments offering such examinations.

Students whose native language is not English should see an advisor in the College Office of Student Affairs.

Major Requirements

All students must complete a program of study consisting of a major (a field of concentration) and supporting courses as specified by one of the academic units of the college. No program of study shall require in excess of 60 semester hours. Students should consult the unit in which they will major for specific details; certain units have mandatory advising.

A major shall consist, in addition to the lower division departmental prerequisites, of 24 to 40 hours, at least 12 of which must be in courses numbered 300 or 400 and at least 12 of which must be taken at the University of Maryland at College Park.

A major program usually requires a secondary field of concentration (supporting courses). The nature and number of these courses are determined by the major department.

No grade lower than C may be used to fulfill major or supporting course requirements. No course for the major or support module may be taken Pass-Fail.

Advising

Freshmen and new transfer students have advisors in the Arts and Humanities College Office of Student Affairs (405-2110) who assist them in the selection of courses and the choice of a major. After selecting a major, students are advised in their major department and may also continue to see college advisors. For further information about advising, students should see the section on advising in the Mini-Guide, available from the College.

Degrees and Majors

The College of Arts and Humanities offers the degree of Bachelor of Arts in the following fields of study:

- American Studies
- Art
- Art History and Archeology
- Classics
  - Classical Humanities
  - Greek
  - Latin
- Dance
- Design*
  - Advertising Design
  - Interior Design
- East Asian Languages and Literatures
  - Chinese
  - Japanese
- English Language and Literature
- French Language and Literature
- German Language and Literature
- History
- Italian Language and Literature
- Jewish Studies
- Linguistics
- Music
- Philosophy
- Radio, Television, and Film*
- Romance Languages
- Russian Language and Literature
- Russian Area Studies
- Spanish Language and Literature
- Speech Communication
- Theatre

*Admission to these programs has been suspended.

The college also offers the degree of Bachelor of Music, certificate programs in Women's Studies and East Asian Studies; and a program in Comparative Literature.

Internships

Some departments in Arts and Humanities have well-established internship offerings. Typically, students must complete an application and attach a current academic transcript. Internships are generally for one semester of the junior or senior year for students with a good academic record. Along with the actual work experience, students do a written analysis of the experience. For more information, students should contact their major departmental advisor. A Literacy Internship Program is available through the college office (405-2115).

Certification of High School Teachers

A student who wishes certification as a high school teacher in a subject represented in this college must consult the College of Education in the second semester of the sophomore year. Application for admission to the Teacher Education program is made at the time that the first courses in Education are taken. Enrollment in the College of Education is limited.

Honors

Departmental Honors Programs are offered in the Departments of Art History, English, French, German, History, Music, Philosophy, Spanish, Speech, and Theatre. Departmental Honors Programs are administered by an Honors Committee within each department. Programs and policies differ from department to department. Admission to a Departmental Honors Program ordinarily occurs at the beginning of the first or second

semester of the student's junior year. Students must have a cumulative grade point average of at least 3.0 to be admitted. Most departments require a comprehensive examination over the field of the major program, or a thesis. On the basis of the student's performance on the Honors Comprehensive Examination and in meeting such other requirements as may be set by the Departmental Honors Committee, the faculty may vote to recommend the candidate for the appropriate degree with (departmental) honors or for the appropriate announcement in the commencement program and citation on the student's academic record and diploma.

In some departments, honors students enjoy certain academic privileges similar to those of graduate students.

Phi Beta Kappa. Consult the description of Phi Beta Kappa elsewhere in this catalog.

Research and Service Units

Academic Computing Services
3101 Francis Scott Key Hall; 405-2104
Director: John F. Smith

Academic Computing Services provides facilities and support for a wide range of computing needs for undergraduate students in the College of Arts and Humanities. There are currently 65 networked microcomputers located in four laboratories throughout the college which are available for student use. In addition, the college provides discipline specific classroom laboratories for the Professional Writing Program in English, foreign language instruction and computer-aided design.

The Art Gallery
2202 Art-Sociology Building; 405-2763
Director: Terry Gips

The Art Gallery presents a series of exhibitions each year of historic and contemporary art in a variety of media and subject matter. Opportunities for museum training and experience are available to students through intern and work-study positions.

The Center for Studies in Nineteenth-Century Music
4321 Hartwick Rd, Suite L220; 403-4230
Director: H. Robert Cohen
Associate Director: Luke Jensen

The Center for Studies in Nineteenth-Century Music promotes research focusing on nineteenth-century music and musical life. The center's programs are designed to facilitate the study, collection, editing, indexing, and publication of documentary source materials.

The Center for Renaissance and Baroque Studies
1120 Francis Scott Key Hall; 405-6830
Director: S. Schoenbaum
Executive Director: Adele Seeff

The Center for Renaissance and Baroque Studies promotes teaching and research in the Renaissance and Baroque periods in all disciplines of the arts and humanities, as well as in such allied fields as the history and philosophy of science.

The Language Center
1106 Jimenez Hall; 405-4926
Director: A Ronald Walton (Acting)
Assistant Director: Charlotte Groff Aldridge

The Language Center promotes cross-departmental projects in teaching and research relating to other languages and cultures. It provides for the common needs of language instruction for all the individual campus units involved in second-language acquisition. It encompasses three units:

Language House
0107 St. Mary's Hall; 405-6995
Coordinator: Dolores Bondurant

The Language House is a campus residence for students wishing to immerse themselves in the study of a foreign language and culture. A total of 92 students of Chinese, French, German, Hebrew, Italian, Japanese, Russian, and Spanish share 19 apartments. A live-in graduate mentor leads each language cluster. The goal of language immersion is achieved through activities organized by the students and mentors, a computer-based Language Learning Center, an audio-visual room, an international cafe, and foreign television programs received via satellite.

Language Media Center
1202 Jimenez Hall; 405-4924
Coordinator: James E. Royalty

The Language Media Center serves the technological needs of foreign language instruction at College Park. It houses a large collection of video and audio programs in more than 25 languages, graphic and resource materials, language laboratories, and video viewing rooms.

FOLA
4117 Jimenez Hall; 405-4046
Director: William MacBain

The FOLA (Foreign Language) Program enables qualified students with high motivation to acquire a speaking knowledge of a number of foreign languages not offered in regular campus programs. While instruction is basically self-instructional, students meet regularly with a native-speaking monitor for practice sessions to reinforce what has already been covered through the individual use of books and audio tapes. Final examinations are administered by outside examiners who are specialists in their field.

Maryland English Institute
1102 Preinkert Fieldhouse; 405-8634
Director: Leslie A. Palmer

The Maryland English Institute (MEI) offers special instruction in English to students at the University of Maryland who need to improve their competence in the language before they are able to undertake a full program of academic work. Two programs are offered: a half-time semi-intensive course and a full-time intensive course.

Semi-intensive. This program is open only to University of Maryland students, both graduate and undergraduate, who fall within a TOEFL score range of 450-549. Candidates in this proficiency range may be admitted to the University of Maryland on a provisional basis, requiring them to satisfactorily complete the MEI Semi-intensive program in order to become full-time students. Classes meet two hours per day, five days per week. In addition, students have two hours per week of assigned work in the language laboratory. The program is designed especially to perfect the language skills necessary for academic study at the University of Maryland. Enrollment is by permission of the director, and no credit is given toward any degree at the university.

Intensive. This full-time English-as-a-Foreign-Language program is open to non-native speakers of English who need substantial improvement in their English competence before they can undertake any academic study at a college or university in the United States. On the basis of an entrance examination, students will be assigned to classes at their particular proficiency levels. They will have five hours of English language instruction per day, five days per week during the regularly scheduled semester and an eight-week summer session. The program is intended primarily for students who wish to enroll at the University of Maryland after completing their language instruction. However, satisfactory completion of the language program does not guarantee acceptance at the university. Enrollment is by permission of the director and no credit is given toward any degree at the university.

Course Code: ARHU

COLLEGE OF BEHAVIORAL AND SOCIAL SCIENCES (BSOS)

2141 Tydings Hall, 405-1679

Dean: Irwin L. Goldstein
Associate Dean: Stewart L. Edelstein
Assistant Dean for Student Affairs: Katherine Pedro Beardsley
Assistant Dean for Equity and Recruitment: Diana Ryder Jackson
Advising and Records Office: 405-1697
Center for Minorities in Behavioral and Social Sciences: 405-1708

The College of Behavioral and Social Sciences is comprised of a diverse group of disciplines and fields of study all of which emphasize a broad liberal arts education as the foundation for understanding the environmental, social, and cultural forces that shape our world. At the heart of the behavioral and social sciences is the attempt to understand human beings, both individually and in groups. Disciplines in the behavioral and social sciences use approaches that range from the scientific to the philosophical, from the experimental to the theoretical. Integral to all the

disciplines, however, is the development and application of problem solving skills, which in combination with other academic skills, enable students to think analytically and to communicate clearly and persuasively. Students interested in human behavior and in solving human and social problems will find many exciting opportunities through the programs and courses offered by the College of Behavioral and Social Sciences.

The college is composed of the following major programs that lead to the Bachelor of Arts or the Bachelor of Science degree, as appropriate:

Afro-American Studies Program*
Department of Anthropology
Department of Economics
Department of Geography
Department of Government and Politics
Department of Hearing and Speech Sciences
Department of Psychology
Department of Sociology
Department of Urban Studies and Planning
Institute of Criminal Justice and Criminology

*The Afro-American Studies Program also offers an undergraduate certificate requiring 21 semester hours of coursework (See "Campus-Wide Programs" in this catalog.)

Advising

The BSOS Undergraduate Advising Office and the Center for Minorities coordinate advising and maintain student records for BSOS students. Advisors are available to provide information concerning university requirements and regulations, transfer credit evaluations, and other general information about the university by appointments taken on a walk-in basis from 9 a.m. to 4 p.m. daily. Undergraduate advisors for each undergraduate major are located in the department offices. These advisors are available to assist students in selecting courses and educational experiences in their major area of study consistent with major requirements and students' educational goals.

Graduation Requirements

Each student must complete a minimum of 120 hours of credit with at least a 2.0 cumulative average. Courses must include the credits required in the University's general education requirements (USP or CORE) and the specific major and supporting course and grade requirements of the programs in the academic departments offering baccalaureate degrees.

All students are urged to speak with an academic advisor in the College Advising Office at least two semesters before graduation to review their academic progress and discuss final graduation requirements.

Honors

Undergraduate honors are offered to graduating students in the Afro-American Studies Program, the departments of Anthropology, Economics, Geography, Government and Politics, Psychology, and Sociology, the Institute for Urban Studies and the Institute of Criminology and Criminal Justice.

Dean's Scholars. The highest academic award that a BSOS student can earn in the college, Dean's Scholars are those graduating seniors who have completed 90 credits at UMCP and have maintained a minimum cumulative grade point average of 3.800.

Dean's List. Any student who has passed at least twelve hours of academic work in the preceding semester, without failure of any course and with an overall average grade of at least 3.5 will be placed on the Dean's List of Distinguished Students.

Field Experiences/Pre-professional and Professional Training

Pre-professional training and professional opportunities in the behavioral and social sciences are available in many fields. The internship programs offered by many departments in the college provide students with practical experience working in governmental agencies, nonprofit organizations, corporations, and the specialized research centers and laboratories of the College.

Undergraduate Research Opportunities

Undergraduate research internships allow qualified undergraduate students to work with research laboratory directors and faculty in departments andspecialized research centers, thus giving the student a chance for a unique experience in the design and conduct of research and scholarship. Students are advised to consult with their department advisors on research opportunities available in the major.

Student Organizations and Honor Societies

Students who excel in their academic discipline may be selected for membership in an honorary society. Honoraries for which students in BSOS are chosen include:

Alpha Kappa Delta—Sociology
Alpha Phi Sigma—Criminal Justice
Lambda Epsilon Gamma—Law
Omega Delta Epsilon—Economics
Pi Sigma Alpha—Political Sciences
Psi Chi—Psychology

Students who major in the Behavioral and Social Sciences have a wide range of interests. The following is a list of student organizations in the disciplines and fields of the Behavioral and Social Sciences:

Anthropology Student Organization
Conservation Club
Criminal Justice Student Association
Economics Club
Gamma Theta Upsilon (Geography)
Government and Politics Club
Minority Pre-Professional Psychology Society
National Student Speech-Language and Hearing Association (NSSLHA), Maryland Chapter
Pre-Medical Society (Pre-Med/Psychology Majors)
Thurgood Marshall Pre-Law Society

For more information about these student organizations or starting a new student group, please contact the Office of Campus Activities, 1191 Adele H. Stamp Student Union, 314-7174.

Special Resources and Opportunities

The Center for Minorities in the Behavioral and Social Sciences
2201 LeFrak Hall; 405-1708

The Center for Minorities provides academic and other support services designed specifically to meet the needs of minority students in the college. The center provides advising on academic and other concerns related to students' progress at the university; provides referrals, when appropriate, to other campus offices; and sponsors workshops and related activities on issues of particular relevance to minority students. Advisors are available on a walk-in basis and by appointment.

The Center for Political Participation and Leadership
3110 Art-Sociology Building; 405-6402
Director: Georgia Sorenson

The Center was established in November of 1989 to foster and encourage young people to prepare for elective office and community and public service. Special attention is paid to students from groups historically underrepresented in the political spectrum. Closely affiliated with the academic departments in the college, the center has established internships and Fellowships with Maryland senators and delegates, the Women Legislators of Maryland, the Offices of the Governor and Lt. Governor and Cabinet members. The center has placements on Capitol Hill and in county and local elected officials offices around the state. Research Fellowships for the study of global politics have been funded in the past.

The BSOS Computer Laboratory
0221 LeFrak Hall; 405-1670
Acting Director: Charles Wellford

The college believes strongly that the study of behavioral and social sciences should incorporate both quantitative analysis and computational skills. Consequently, curricula in most departments require some coursework in statistics, quantitative research methods, and the use of

computers. The BSOS Computer Laboratory provides undergraduate students in the college with the facilities and staff assistance to satisfy a wide range of computer-related needs. The Laboratory operates eight computer classroom facilities and a special purpose graphics lab which are available for both in and out-of-class student use.

Research and Service Units

The College of Behavioral and Social Sciences sponsors several special purpose college-wide research centers. These centers are **The Center for Global Change, The Center for International Development and Conflict Management**, and the **Center for Substance Abuse Research**. These interdisciplinary centers often offer internships and a selected number of undergraduate research assistant opportunities for interested students. These research experiences offer excellent preparation for future graduate study and/or job opportunities in the private and public sectors.

The Center for International Development and Conflict Management

2nd Floor Mill Building; 314-7703
Director: Murray E. Polakoff

The Center for International Development and Conflict Management is a research center focusing on the management and resolution of protracted conflict in the world today. Established in 1981, the center has a staff composed of university faculty, visiting fellows and associates involved in study of contemporary international and intercommunal conflicts, including their causes, dynamics, management strategies and peaceful resolution.

Center for Substance Abuse Research (CESAR)

Acting Director: Eric D. Wish

Established in 1990, CESAR is a research unit co-sponsored by the College of Behavioral and Social Sciences and the College of Health and Human Performance. CESAR staff gather, analyze, and disseminate timely information on issues of substance abuse, and monitor alcohol and drug use indicators throughout Maryland. CESAR aids state and local governments in responding to the problem of substance abuse by providing the above stated information, as well as technical assistance and research. Faculty members from across campus are involved with CESAR-based research, creating a center in which substance abuse issues are analyzed from multi-disciplinary perspectives. Students obtain advanced technical training and hands-on experience through their involvement in original surveys and research.

COLLEGE OF BUSINESS AND MANAGEMENT (BMGT)

Office of Undergraduate Studies: 1308 MPA Building, 405-2286

Professor and Dean: William E. Mayer ✓
Professor and Associate Dean: Bradford
Associate Dean and Director of EDP: Stocker
Professor and Director of Doctoral Program: Sims
Director of the Masters' Programs: Wellman
Assistant Dean for Undergraduate Studies: Mattingly
Director of Undergraduate Student Services: King
Advisor/Consultant: Mirhadi

The College of Business and Management recognizes the importance of education in business and management to economic, social, and professional development through profit and non-profit organizations at the local, regional, and national levels. The faculty of the college have been selected from the leading doctoral programs in business. They are scholars, teachers, and professional leaders with a commitment to superior education in business and management, specializing in accounting, finance, decision and information sciences, management science and statistics, management and organization, marketing, and transportation, business and public policy. The College of Business and Management is accredited by the American Assembly of Collegiate Schools of Business, the official national accrediting organization for business schools.

Degrees

The university confers the following degrees on students successfully completing programs of study in the college: Bachelor of Science (B.S.), Master of Business Administration (M.B.A.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.). Information concerning admission to the M.B.A. or M.S. program is available from the college's Director of the Masters' Programs.

Undergraduate Program

The undergraduate program recognizes the need for professional education in business and management based on a foundation in the liberal arts. Modern society comprises intricate business, economic, social, and government institutions requiring a large number of men and women trained to be effective and responsible managers.

A student in business and management selects a major in one of several curricula: (1) Accounting; (2) Decision and Information Sciences; (3) Finance; (4) General Business and Management (including an International Business option); (5) Management Science; (6) Marketing; (7) Personnel and Labor Relations; (8) Production Management; (9) Statistics; and (10) Transportation.

Students interested in institutional management, insurance or real estate may plan with their advisors to select elective courses to meet their specialized needs; however, this interest is in addition to completion of one of the above majors. (See specific suggestions at the end of curricula section to follow.)

Honors Program

The College of Business and Management Honors Program has two components: class study and individual study. Together, these provide for in-depth inquiry and research into the field of business. Admission is administered through the College of Business and Management Honors Admission Committee. Interested students should contact an advisor in the Office of Undergraduate Studies.

Advising

General advising in the College of Business and Management is available Monday through Friday in the Office of Undergraduate Studies, 1308 MPA Building, 405-2286. It is recommended that students visit this office each semester to ensure that they are informed about current requirements and procedures.

Transfer students entering the university can be advised during spring, summer, and fall transfer orientation programs. Contact the Orientation Office for further information, 314-8217.

Admission to Business and Management

See the Admissions section in this catalog for general LEP admissions policies.

Freshman Admission and the 45 Credit Review. Most first-time entering freshmen will gain admission to the College of Business and Management directly from high school, as allowed by space considerations within the College. Because space may be limited before all interested freshmen are admitted to the program, early application is encouraged. Freshmen admitted to the program will have access to the necessary advising through their initial semesters to help them determine if Business is an appropriate area for their interests and abilities.

Freshmen who are admitted directly to Business will be subject to a performance review by the time they have completed 45 credits. To meet the provisions of the review, these students must complete: (1) English Fundamental Studies; (2) 60% of lower level CORE requirements; (3) BMGT 220, BMGT 230 or 231, and ECON 201 or ECON 203 with a combined GPA of 2.5 in the 3 courses; and (4) a minimum cumulative GPA of 2.0. Students who do not meet these requirements will not be allowed to continue in the LEP and will be required to select another major.

Transfer Admission. The following requirements affect new transfer students to the university.

Transfer students, as well as on-campus students hoping to change majors into the College, will be required to meet the following set of gateway requirements: (1) completion of BMGT 220, BMGT 230 or 231, and ECON 201 or 203 with a minimum grade of C in each and a combined average of 2.5 for the three courses; and (2) attainment of a minimum cumulative GPA for all college-level work attempted. The required GPA is set each year and may vary from year to year depending upon available

space. Contact the College of Business and Management or the Office of Undergraduate Admission for the current GPA standard.

Appeals. Students who are unsuccessful in gaining admission to Business at the freshman or transfer level, and believe they have extenuating or special circumstances which should be considered, may appeal in writing to the Assistant Dean for Undergraduate Studies in the College of Business and Management. The student will be notified in writing of the appeal decision once it is made.

Students admitted to Business as freshmen who do not pass the 45 credit review but believe they have special circumstances which should be considered may also appeal directly to the College.

For further information, contact the Office of Undergraduate Studies for the College of Business and Management at 301-405-2286.

Statement of Policy on Transfer of Credit from

Community Colleges

It is the practice of the College of Business and Management to consider for transfer from a regionally accredited community college only the following courses in business administration: an introductory business course, business statistics, elementary accounting or business law. Thus, it is anticipated that students transferring from another regionally accredited institution will have devoted the major share of their academic effort below the junior year to the completion of basic requirements in the liberal arts. A total of sixty semester hours from a community college may be applied toward a degree from the College of Business and Management.

Other Institutions

The College of Business and Management normally accepts transfer credits from regionally accredited four-year institutions. Junior and senior level business courses are accepted from colleges accredited by the American Assembly of Collegiate Schools of Business (AACSB). Junior and senior level business courses from other than AACSB accredited schools are evaluated on a course-by-course basis to determine transferability.

Summary of Bachelor of Science Degree Requirements (all curricula): At least 45 hours of the 120 semester hours of academic work required for graduation must be in business and management subjects. A minimum of fifty-seven hours of the required 120 hours must be in 300 or 400 level courses. In addition to the requirement of an overall cumulative grade point average of 2.0 (C average) in all College Park coursework, effective Fall 1989, all business majors must earn a "C" or better in all required courses, including Economics, Mathematics, and Speech. Electives outside the curricula of the college may be taken in any department of the university, if the student has the necessary prerequisites.

Junior-Senior College Requirements	Credit Hours
BMGT 301—Intro. to Data Processing	3
BMGT 340—Business Finance (Prerequisite BMGT 221 and 230)	3
BMGT 350—Marketing Principles and Organization (Prerequisite ECON 203)	3
BMGT 364—Management and Organizational Theory	3
BMGT 380—Business Law	3
BMGT 495 or 495A, Business Policies (open ONLY to seniors)	3
Economics (see below)	6
Total	24

Economics Requirements

Finance Curriculum: ECON 430 or ECON 431, AND one course from ECON 305, 306, 402, 440 or 450.

General Business and Management Curriculum: One course from ECON 305, 306, 430, or 440, AND one course from an approved list of ECON, GEOG, PSYC, or SOCY courses. The approved list is available in 2136 Tydings Hall. For the International Business option, ECON 440 and one of the following: ECON 305, 306, 311, 315, 316, 317, 361, 370, 374, 375, 380; or any 400 level ECON except 422, 423, or 425.

All other curricula: One course from ECON 305, 306, 430 or 440, AND one of the following courses: ECON 305, 306, 311, 315, 316, 317, 361, 370, 374, 375, 380 or any 400 level ECON course except 422, 423, or 425.

A Typical Program for the Freshman and Sophomore Years

Freshman Year	Credit Hours	
CORE and/or electives	9	(8)
English 101 or equivalent	3	
MATH 002*, 115, or 220 (or 140**)	3	(4)
First semester total	15	
CORE and/or electives	9	(8)
SPCH 100 or 107	3	
MATH 115, (141**), 220 or elective	3	(4)
Second semester total	15	

Sophomore Year	
CORE and/or electives	6
BMGT 220 (Prereq. Sophomore Standing)	3
ECON 201 (Prereq. Sophomore Standing)	3
MATH 220 or BMGT 230 (231**) or elective	3
Third semester total	15
CORE and/or electives	6
ECON 203 (Prereq. ECON 201)	3
BMGT 221 (Prereq. BMGT 220)	3
BMGT 230 (Prereq. MATH 220) or 231** (Prereq. MATH 141) or elective	3
Fourth semester total	15

*MATH 002 is a non-credit course which prepares a student for either 115 or 220 depending on the grade earned in 002.
**Required for Decision and Information Sciences, Management Science, and Statistics curricula.

Curricula

Accounting

Chair: S. Loeb
Professors: Gordon, S. Loeb
Associate Professors: Bedingfield, M. Loeb
Assistant Professors: Jang, Kandelin, LeClere, Thompson, Wong

Accounting, in a limited sense, is the analysis, classification, and recording of financial events and the reporting of the results of such events for an organization. In a broader sense, Accounting consists of all financial systems for planning, controlling and appraising performance of an organization. Accounting includes among its many facets: financial planning, budgeting, accounting systems, financial management controls, financial analysis of performance, financial reporting, internal and external auditing, and taxation.

The Accounting curriculum provides an educational foundation for careers in Accounting and other management areas whether in private business organizations, government and non-profit agencies, or public accounting firms.

Course requirements for the junior-senior curriculum concentration in Accounting are as follows:

	Credit Hours
BMGT 310, 311—Intermediate Accounting I and II	6
BMGT 321—Cost Accounting	3
BMGT 323—Income Tax Accounting	3
Three of the following courses:	9
BMGT 326—Accounting Systems	
BMGT 410—Fund Accounting	
BMGT 411—Ethics and Professionalism in Accounting	
BMGT 417—Advanced Tax Accounting	
BMGT 420, 421—Undergraduate Accounting Seminar	
BMGT 422—Auditing Theory and Practice	
BMGT 424—Advanced Accounting	
BMGT 426—Advanced Cost Accounting	
BMGT 427—Advanced Auditing Theory and Practice	
Total	21

The educational requirements of the Maryland State Board of Accountancy for certification are a baccalaureate or higher degree with a major in Accounting or with a non-accounting degree supplemented by coursework the Board determines to be substantially the equivalent of an Accounting major. Students planning to take the CPA examination for certification and licensing outside Maryland should determine the educational requirements for that state and arrange their program accordingly.

Decision and Information Sciences

Chair: Hevner
Professor: Yao
Associate Professors: Alavi, Hevner
Assistant Professors: Raschid

Computer-based information systems are an integral part of nearly all businesses, large and small. Decision and Information Sciences provides the data processing skills, the managerial and organizational skills, and the analytical skills required to design and manage business information processing systems. This program gives the student a firm basis in the business functional areas: Marketing, Finance, Production, and Accounting. In addition, it provides an in-depth knowledge of information processing technology, information processing implementation techniques, and Management Science and Statistics. There are many diverse employment opportunities available to graduates of this program. The typical job areas include application programmer/analyst, systems analyst, and computer system marketing analyst. Such positions are available in both large and small corporations, management consulting firms, and government agencies.

Students planning a major in this field must complete MATH 140 and MATH 141 and BMGT 231 prior to junior standing. Students considering graduate work in this field should complete MATH 240 or 400 as early as possible in their careers.

Course requirements for the junior-senior curriculum concentration in the Decision and Information Sciences are as follows:

	Credit Hours
BMGT 302—Information Systems Implementation Techniques	3
Three of the following four courses:	
BMGT 402—Database and Data Communication Systems	3
BMGT 403—Systems Analysis	3
BMGT 404—Seminar in Decision Support Systems	3
BMGT 405—Business Telecommunications	3
BMGT 407—Information Systems Projects	3
BMGT 430—Linear Statistical Models in Business	3
BMGT 434—Introduction to Optimization Theory	3
BMGT 435—Introduction to Applied Probability Models	3
Total	24

Finance

Chair: Kolodny
Professors: Bradford, Chen, Haslem, Kolodny, Senbet
Associate Professors: Chang, Eun, Madan, Maksimovic
Assistant Professors: Pichler, Unal

The Finance curriculum is designed to familiarize the student with the institutions, theory, and practice involved in the allocation of financial resources within the private sector. It is also designed to incorporate foundation study in such related disciplines as economics and the quantitative areas.

The Finance curriculum provides an educational foundation for careers involving financial analysis and management, investment analysis and portfolio management, investment banking, insurance and risk management, banking, and international finance; it also provides a foundation for graduate study in business administration, quantitative areas, economics, and law.

Course requirements for the junior-senior curriculum concentration in Finance are as follows:

	Credit Hours
Both of the following courses:	6
BMGT 343—Investments	
BMGT 440—Financial Management	
Three of the following courses:	9
BMGT 443—Security Analysis and Valuation	
BMGT 444—Futures Contracts and Options	
BMGT 445—Commercial Bank Management	
BMGT 446—International Finance	
BMGT 498—Special Topics in Business and Management (Finance)	
One of the following courses:	3
BMGT 310—Intermediate Accounting	
BMGT 332—Operations Research for Management Decisions	
BMGT 430—Linear Statistical Models in Business	
BMGT 434—Introduction to Optimization Theory	
Total	18

NOTE: Students may take alternative courses in Section 2 and 3 subject to availability and approval of the chairperson.

Management and Organization

Chair: Locke†
Professors: Bartol†, Carroll†, Gannon, Gupta, Levine, Locke, Sims, Smith
Associate Professors: Olian, Taylor
Assistant Professors: Stevens, Wally
†Distinguished Scholar-Teacher

Human Resource Management is the direction of human effort. It is concerned with securing, maintaining and utilizing an effective work force. People professionally trained in Human Resource Management find career opportunities in business, government, educational institutions, and charitable and other organizations.

Course requirements for the junior-senior curriculum in Human Resource Management are as follows:

	Credit Hours
BMGT 360—Human Resource Management	3
BMGT 362—Labor Relations	3
BMGT 460—Human Resource Management-Analysis and Problems	3
BMGT 462—Labor Legislation	3
BMGT 464—Organizational Behavior	3
One of the following courses (check prerequisites):	3
BMGT 385—Production Management	
BMGT 467—Undergraduate Seminar in Human Resource Management	
GVPT 411—Public Personnel Administration	
JOUR 330—Public Relations	
PSYC 361—Survey of Industrial and Organizational Psychology	
PSYC 451—Principles of Psychological Testing	
PSYC 452—Psychology of Individual Differences	
SOCY 447—Small Group Analysis	
SOCY 462—Industrial Sociology	
Total	18

Management Science and Statistics

Chair: Golden
Professors: Assad, Ball, Bodin, Gass, Golden, Kotz†, Lamone
Associate Professors: Alt, Fromovitz, Widhelm
Assistant Professors: Fu, Grimshaw, Kaku
†Distinguished Scholar-Teacher

In the Management Science and Statistics curriculum, the student has the option of concentrating primarily in Management Science, Production Management, or Statistics. All Management Science and Statistics students must take MATH 140 and MATH 141 and BMGT 231.

Management Science

Management Science (operations research) is the application of scientific methods to decision problems, especially those involving the control of organized human-machine systems, to provide solutions that best serve the goals and objectives of the organization as a whole. Practitioners in this field are employed in industry, business, and federal, state, and local governments. Students planning to major in this field must complete MATH 140 and 141 prior to junior standing. Students considering graduate work in this field should complete MATH 240 and 241 as early as possible in their careers.

Course requirements for the junior-senior curriculum concentration in the Management Science are as follows:

	Credit Hours
BMGT 430—Linear Statistical Models in Business	3
BMGT 434—Introduction to Optimization Theory	3
BMGT 435—Introduction to Applied Probability Models	3
BMGT 436—Applications of Mathematical Programming in Management Science	3
Two of the following courses (check prerequisites)	6
BMGT 385—Production Management	
BMGT 432—Sample Survey Design for Business and Economics	
BMGT 433—Statistical Decision Theory in Business	
BMGT 438—Topics in Statistical Analysis for Business and Management	
BMGT 485—Advanced Production Management	
BMGT 402—Database and Data Communication Systems	
BMGT 403—Systems Analysis	
Total	18

Production Management

This curriculum is designed to acquaint the student with the problems of organization and control in the field of Production Management. Theory and practice with reference to organization, policies, methods, processes, and techniques are surveyed, analyzed, and evaluated.

Course requirements for the junior-senior curriculum concentration in Production Management are as follows:

	Credit Hours
BMGT 321—Cost Accounting	3
BMGT 360—Human Resource Management	3
BMGT 385—Production Management	3
BMGT 485—Advanced Production Management	3
Two of the following courses (check prerequisites):	6
BMGT 362—Labor Relations	
BMGT 332—Operations Research for Management Decisions	
BMGT 372—Traffic and Physical Distribution Management	
BMGT 433—Statistical Decision Theory in Business	
BMGT 453—Industrial Marketing	
Total	18

Statistics

Statistics consists of a body of methods for utilizing probability theory in decision-making processes. Important statistical activities ancillary to the decision-making process are the systematization of quantitative data and the measurement of variability. Some specialized areas within the field of statistics are sample surveys, forecasting, quality control, design of experiment, Bayesian decision processes, actuarial statistics, and data processing. Statistical methods, such as sample survey techniques, are widely used in accounting, marketing, industrial management, and government applications. An aptitude for applied mathematics and a desire to understand and apply scientific methods to significant problems are important prerequisites for the statistician.

Course requirements for the junior-senior curriculum concentration in Statistics are as follows:

	Credit Hours
BMGT 430—Linear Statistical Models in Business	3
BMGT 432—Sample Survey Design for Business and Economics	3
BMGT 434—Introduction to Optimization Theory	3
BMGT 438—Topics in Statistical Analysis for Business and Management	3
Two of the following courses (check prerequisites):	6
BMGT 385—Production Management	
BMGT 433—Statistical Decision Theory in Business	
BMGT 435—Introduction to Applied Probability Models	
BMGT 436—Applications of Mathematical Programming in Management Science	
BMGT 450—Marketing Research Methods	
Total	18

Marketing

Chair: Durand
Professors: Durand, Greer, Jolson
Associate Professors: Biehal, Krapfel, Nickels, Wagner
Assistant Professors: Ali, Lefkoff-Hagius, Sengupta, Seshadri

Marketing, the study of exchange activities, involves the functions performed in getting foods and services from producers to users. Career opportunities exist in manufacturing, wholesaling, retailing, service organizations, government, and non-profit organizations, and include sales administration, marketing research, advertising, merchandising, physical distribution, and product management. Students preparing for work in marketing research are advised to elect additional courses in Management Science and Statistics.

Course requirements for the junior-senior curriculum concentration in Marketing are as follows:

	Credit Hours
BMGT 451—Consumer Analysis	3
BMGT 452—Marketing Research Methods	3
BMGT 457—Marketing Policies and Strategies	3
Three of the following courses (check prerequisites):	9
BMGT 353—Retail Management	
BMGT 354—Promotion Management	
BMGT 372—Traffic and Physical Distribution Management OR	
BMGT 430—Linear Statistical Models in Business OR	
BMGT 431—Design of Statistical Experiments in Business	
(only one of BMGT 372, 430, and 431 may be taken)	
BMGT 453—Industrial Marketing	
BMGT 454—International Marketing	
BMGT 455—Sales Management	
BMGT 456—Advertising	
Total	18

Transportation, Business, and Public Policy

Chair: Corsi
Professors: Corsi, Leete, Preston, Simon, Taft (emeritus)
Associate Professor: Grimm
Assistant Professors: Dresner, Mattingly, Ostas, Scott, Stockdale, Windle

Transportation

This curriculum involves the movement of persons and goods in the satisfaction of human needs. The curriculum in Transportation includes an analysis of the services and management problems, such as pricing, financing, and organization, of the five modes of transport—air, motor, pipelines, railroads and water—and covers the scope and regulation of transportation in our economy. The effective management of transportation involves a study of the components of physical distribution and the interaction of procurement, the level and control of inventories, warehousing, material handling, transportation, and data processing. The curriculum in Transportation is designed to prepare students to assume responsible positions with carriers, governmental agencies, and in traffic and physical distribution management in industry.

Course requirements for the junior-senior curriculum concentration in Transportation are as follows:

	Credit Hours
BMGT 370—Principles of Transportation	3
BMGT 372—Traffic and Physical Distribution Management	3
BMGT 470—Carrier Management	3
BMGT 476—Applied Computer Models in Transportation and Logistics	3
One of the following courses:	3
BMGT 473—Advanced Transportation Problems	
BMGT 475—Advanced Logistics Management	
One of the following courses:	3
BMGT 332—Operations Research for Management Decisions	
BMGT 454—International Marketing	
BMGT 473 or 475 (depending on choice above)	
BMGT 474—Urban Transportation and Development	
BMGT 477—International Transportation and Logistics	
BMGT 481—Public Utilities	
BMGT 482—Business and Government	
Total	18

General Business and Management

The General Curriculum is designed for those who desire a broader course of study in business and management than offered in the other college curricula. The General Curriculum is appropriate, for example, for those who plan to enter small business management or entrepreneurship where general knowledge of the various fields of study may be preferred to a more specialized curriculum concentration.

Course requirements for the junior-senior curriculum concentration in General Business and Management are as follows:

	Credit Hours
Accounting/Finance	
One of the following courses:	3
BMGT 321—Cost Accounting	
BMGT 440—Financial Management	
Management Science/Statistics	
One of the following courses:	3
BMGT 332—Operations Research for Management Decisions	
BMGT 385—Production Management	
BMGT 431—Design of Statistical Experiments in Business	
BMGT 433—Statistical Decision Theory in Business	
Marketing	
One of the following courses:	3
BMGT 353—Retail Management	
OR a higher number marketing course (check prerequisites)	

Personnel/Labor Relations
One of the following courses: 3
BMGT 360—Human Resource Management
BMGT 362—Labor Relations
Public Policy
One of the following courses: 3
BMGT 481—Public Utilities
BMGT 482—Business and Government
Transportation/Physical Distribution
One of the following courses: 3
BMGT 370—Principles of Transportation
BMGT 372—Traffic and Physical Distribution Management
Total 18

International Business

International Business is a new option in the General Business major and responds to the global interest in international economic systems and their multicultural characteristics. This degree option combines the college-required courses with five International Business courses and a selection of language, culture and area studies courses from the College of Arts and Humanities and the College of Behavioral and Social Sciences.

Course requirements for the junior-senior curriculum concentration in General Business and Management, International Business option, are

	Credit Hours
BMGT 372—Traffic and Physical Distribution Management	3
BMGT 392—Introduction to International Business	3
BMGT 454—International Marketing	3
BMGT 477—International Transportation and Logistics	3
BMGT 446—International Finance	3
Any 400 level BMGT course or an agreed upon Foreign Language course	3

Students are strongly encouraged to complete the language option to increase the applicability of the International Business option.

Business and Law, Combined Program

In this program, a student completes three years in a chosen major in the business school and, on gaining admission to the University of Maryland School of Law, may use the first year of law school to complete the B.S. requirements provided he/she earns an average grade of "C" or better. Satisfactory completion of an additional 2 years in law school will earn the law degree. A student who fails to gain admission to law school, which is highly competitive and contingent on meeting the applicable standards of the school, will be permitted to complete the final year for the B.S. degree at College Park. Interested students are responsible for securing from the law school its current admission requirements. The student must complete all the courses required of students in the college, except BMGT 380 and BMGT 495. This means the student must complete all the pre-business courses; both upper level ECON courses; BMGT 301, 340, 350, and 364; all lower level CORE requirements; the 15 to 21 hours in the student's specific business major; and enough additional electives to equal a minimum of ninety semester hours, thirty of which must be numbered 300 or above. No business law course can be included in the ninety hours. The last thirty hours of college work before entering law school must be completed in residence at College Park.

Insurance and Real Estate

Students interested in insurance or real estate may wish to concentrate in Finance or General Business and Management and plan with their advisors a group of electives to meet their specialized needs. College courses that are occasionally offered in insurance:

BMGT 345—Property and Liability Insurance
BMGT 346—Risk Management
BMGT 347—Life Insurance

College courses that are occasionally offered in real estate:
BMGT 393—Real Estate Principles
BMGT 490—Urban Land Management

Institutional Management

Students interested in hotel-motel management or hospital administration must fulfill one of the ten majors such as General Business and Management, Finance, or Personnel and Labor Relations and then plan with their advisors a group of electives, such as the following:

BMGT 440—Financial Management
BMGT 482—Business and Government
FSAD 300—Food Service Organization and Management

Honors

Honor Societies:

Beta Alpha Psi. National scholastic and professional honorary fraternity in accounting. Members are elected on the basis of excellence in scholarship and professional service from junior and senior students majoring in accounting in the College of Business and Management.

Beta Gamma Sigma. National scholastic honorary society in business administration. To be eligible students must rank in the upper five percent of their junior class or the upper ten percent of their senior class in the College of Business and Management. Students are eligible the semester after they have earned forty-five credits at the University of Maryland at College Park, and have earned a total of seventy-five credits.

Financial Management Association Honorary Society. National scholastic honorary society sponsored by the Financial Management Association. To be eligible students must be finance majors with a cumulative grade point average of 3.5 for a minimum of ninety credits.

Omega Rho. National scholastic honorary society in operations research, management and related areas. Members are elected on the basis of excellence in scholarship from junior and senior students majoring in appropriate quantitative areas.

Pi Sigma Phi. National scholastic honorary society sponsored by the Propeller Club of the United States. Membership is elected from outstanding senior members of the University of Maryland chapter of the Propeller Club majoring in transportation in the College of Business and Management.

Student Awards: For high academic achievement, students in the college may receive recognition by the Dean's List; Delta Sigma Pi Scholarship Key; Distinguished Accounting Student Awards; and Wall Street Journal Student Achievement Award.

Scholarships: The college offers several scholarships, including the AIACC. J. "Bud" Ecalono Memorial Scholarship #16; Alcoa Foundation Traffic Scholarship; Delta Nu Alpha Chesapeake Chapter No. 23 Scholarship; Delta Nu Alpha Washington, D.C. Chapter No. 84 Scholarship; Geico Achievement Award; William F. Holin Scholarship; National Defense Transportation Association Scholarship, Washington, D.C. Chapter; Propeller Club Scholarship; Warren Reed Scholarship (Accounting); Jack B. Sacks Foundation Scholarship (Marketing); and Charles A. Taff Scholarship (Transportation).

Student Professional Organizations

Students may choose to associate themselves with one or more of the following professional organizations: American Marketing Association; Society of Human Resource Management (Human Resource Management); Association of College Entrepreneurs (all business majors); Black Business Society, Dean's Undergraduate Advisory Council; Delta Nu Alpha (Transportation); Delta Sigma Pi (all business majors); Finance, Banking and Investments Society (finance); National Association of Accountants; Phi Chi Theta (all business majors); Transportation and Logistics Club (NDTA and Propeller Club).

Course Code: BMGT

COLLEGE OF COMPUTER, MATHEMATICAL AND PHYSICAL SCIENCES (CMPS)

3400 A.V. Williams, 405-2677

Dean: R.H. Herman
Assistant Dean: Williams
Assistant to Dean: Bryant

The search for new knowledge is one of the most challenging activities of humankind. Universities are the key institutions in society where fundamental research is emphasized. The College of Computer, Mathematical

and Physical Sciences at College Park contributes very substantially and effectively to the research activities of the University of Maryland. The College of Computer, Mathematical and Physical Sciences is like a technical institute within a large university. Students majoring in any one of the disciplines encompassed by the college have the opportunity of obtaining an outstanding education in their field.

The college serves both students who continue as professionals in their area of specialization, either immediately upon graduation or after post-graduate studies, and those who use their college education as preparatory to careers or studies in other areas. The focused specialist as well as the broad "Renaissance person" can be accommodated. Many research programs include undergraduates either as paid student helpers or in forms of research participation. Students in departmental Honors Programs particularly are given the opportunity to become involved in research. Other students too may undertake research under the guidance of a faculty member.

A major portion of the teaching program of the college is devoted to serving students majoring in disciplines outside of the college. Some of this teaching effort is directed toward providing the skills needed in support of such majors or programs. Other courses are designed as enrichment for non-science students, giving them the opportunity to explore the reality of science without the technicalities required of the major.

The college is strongly committed to making studies in the sciences available to all regardless of their background. In particular, the college is actively pursuing an affirmative action program to rectify the present under-representation of women and minorities in these fields. There are in fact many career opportunities for women and members of minorities in the fields represented by the college.

Structure of the College

The following departments, programs and research units comprise the college:
Department of Astronomy
Department of Computer Science
Department of Geology
Department of Mathematics
Department of Meteorology
Department of Physics
Applied Mathematics Program*
Chemical Physics Program
Physical Sciences Program
Center for Automation Research
Institute for Advanced Computer Studies
Institute for Physical Sciences and Technology
Laboratory for Plasma Research (Joint with College of Engineering)
*See the separate listing for the Applied Mathematics Program in the chapter on departments in this catalog.

Degree Programs

The following Bachelor of Science degree programs are offered to undergraduates by the departments and programs of the college: Astronomy, Computer Science, Geology, Mathematics, Physics, Physical Sciences.

Advising

The CMPS Undergraduate Office, 3400 A.V. Williams Building, 405-2677, is the central office for coordinating the advising, processing and updating of student records. Inquiries concerning university regulations, transfer credits, and other general information should be addressed to this office. Specific departmental information is best obtained directly from the departments.

Graduation Requirements

1. A minimum of 120 semester hours with at least a C average is required of all Bachelor of Science degrees from the college.
2. Forty-three credit hours which satisfy the general education CORE program requirements of the University. In some instances, courses taken to satisfy these requirements may also be used to satisfy major requirements. All students who matriculated in the summer 1978 session or later must complete six credits of English Composition.
3. Major and supporting coursework as specified under each department or program.
4. The final thirty semester hours must be completed at College Park. Occasionally, this requirement may be waived by the dean for up to six of these thirty credits to be taken at another institution. Such a waiver is granted only if the student already has thirty credits in residence.
5. Students must be enrolled in the program in which they plan to graduate by the time they register for the last fifteen hours.

Research and Service Units

Institute for Physical Science and Technology
4203 Computer and Space Sciences Building, 405-4875
Professor and Director: James A. Yorke

The faculty members of the Institute for Physical Science and Technology are engaged in the study of pure and applied science problems that are at the boundaries between those areas served by the academic departments. These interdisciplinary problems afford challenging opportunities for thesis research and classroom instruction. Courses and thesis research guidance by the faculty of the institute are provided either through the graduate program in chemical physics, the applied mathematics program or under the auspices of other departments.

COLLEGE OF EDUCATION (EDUC)

Benjamin Building
Office of Student Services: 405-2344

Dean: Willias D. Hawley

The College of Education is a professional college committed to advancing the science and art of education including the practices and processes which occur from infancy through adulthood in both school and non-school settings. The college mission is to provide preparation for current and future teachers, counselors, administrators, educational specialists, and other related educational personnel, and to create and disseminate the knowledge needed by professionals and policy makers in education and related fields.

The college is organized into six departments, two of which offer undergraduate majors in Teacher Education: the Department of Curriculum and Instruction, which offers early childhood, elementary, and secondary education programs; and the Department of Special Education. Enrollment in the professional teacher education programs in the above-mentioned departments is limited to those who meet the admission requirements specified below.

Only students who have been admitted to the teacher education programs are permitted to enroll in the professional education course sequences. Students with other majors who have an interest in the area of education may wish to enroll in a variety of courses offered by the college that deal with schooling, human development, learning styles and techniques, and interaction processes.

In carrying out its mission, the college is committed to a society which is open to and supportive of the educational aspirations of the widest population of learners and to continuous research and evaluation in relation to teaching and learning in a multicultural, high technology society. At times, students may be invited to participate actively with graduate students and faculty members in research undertakings and evaluation processes. Students also make use of the micro-teaching laboratory, the education technology and computer laboratory, and the curriculum laboratory.

In addition to the CORE or USP program requirements, education majors have the opportunity to complete 45 to 55 credit hours of work in the arts, sciences and/or humanities. In the teacher education courses, students develop professional behaviors through active experiences in the college classroom and participate in exploring, learning and practicing with children and teachers in classrooms in the community. The capstone experience of student teaching brings classroom theory and practice together into a personal set of professionally appropriate skills and processes.

Admission to Teacher Education Professional Coursework

Applicants to the University of Maryland who have declared an interest in education are admitted to a department in the college as intended majors.

All intended majors must apply for admission, and be admitted, in order to enroll in coursework in the professional teacher education degree program.

For admission into a teacher education major, a student must (1) complete English 101 and Math 110 or higher (six credits); (2) earn forty-five semester hours with an overall cumulative grade point average of at least 2.5 on a 4.0 scale (granted by UMCP or some other institution) in all coursework prior to enrollment in EDHD 300 (or EDHD 419 A/D for Early Childhood); (3) submit a personal goal statement that indicates an appropriate commitment to professional education; (4) have prior experiences in the education field; (5) submit three letters of recommendation/reference; and (6) have a satisfactory score on the spelling, language and mathematics segments of the California Achievement Test Level 20. Admission application forms are available in Room 1210 of the Benjamin Building. Students with documented disabilities may contact Disability Support Services (314-7682; TTY, 314-7683) to make special arrangements for taking the examination. Only those who are admitted are able to enroll in the professional education sequence. An overall grade point average of 2.5 must be maintained after admission to Teacher Education to continue in the professional education programs.

A student who initially fails to meet the admission criteria may apply to the college whenever the criteria for admission are met, with the stipulation, however, that a student may take the CAT test a maximum of three times. A plan for becoming eligible for admission may be developed by the student and the department advisor. A Teacher Education Appeals Board reviews appeals from students who do not meet the admission, advancement or retention criteria. Consult the Student Services Office for policies and procedures regarding appeals.

Criteria for admission to the Teacher Education program apply to any teacher preparation program offered by the University of Maryland. Thus, students desiring a major in health or physical education should apply to the College of Education for admission to the professional program in Teacher Education. Students who are not enrolled in the College of Education but who, through an established cooperative program with another college are preparing to teach, must meet all admission, scholastic and curricular requirements of the College of Education. The professional education courses are restricted to degree-seeking majors who have met College of Education requirements for admission.

Student Teaching

Prior to receiving a student teaching placement, prospective student teachers must have been admitted to Teacher Education and have completed requirements described below. In programs requiring more than one student teaching placement, the first placement must be satisfactorily completed before the student begins the succeeding placement. Prior to assignment all students in teacher preparation programs must: (1) have maintained an overall grade point average of at least 2.5 with a minimum grade of C in every course required for the major; (2) have satisfactorily completed all other required course work in their program; (3) apply for student teaching to the Office of Laboratory Experiences one semester in advance; (4) be recommended by their department; (5) have on file favorable ratings from prior supervised experiences in school settings including evaluations of the EDHD 300 (or EDHD 419 A/B for Early Childhood) field experiences; and (6) have undergone a criminal background check. A certificate indicating freedom from tuberculosis and proof of immunization for measles (rubella) is also required. This may be obtained from a private physician, a health department, or the University Health Center.

The student teaching experience is for most students the final experience in a professional program preparing them for the beginning teaching years. This culminating phase of the teacher education program provides the prospective teacher with the opportunity to integrate theory and practice in a comprehensive, reality-based, experience. Student teaching placements, as well as all other field experiences, are arranged by the Office of Laboratory Experiences.

Most student teaching placements and accompanying seminars are arranged in the Teacher Education Centers and other collaborative field sites jointly administered by the College of Education and participating school systems. The student teaching semester is a full-time commitment and interference with this commitment because of employment or coursework is not permitted. The Office of Laboratory Experiences makes student teaching assignments with consideration given to location, programmatic priorities, diversity, and availability of sites. Students should be prepared to travel to whichever school has been assigned. Living arrangements, including transportation for the student teaching assignments, are considered the responsibility of the student. Students should contact the Office of Laboratory Experiences if there are any questions regarding this policy.

Graduation Requirements

The degrees of Bachelor of Arts and Bachelor of Science are conferred by the College of Education. The determination of which degree is conferred is dependent upon the amount of liberal arts study included in a particular degree program. Minimum requirements for graduation are 120 semester hours. Specific departmental program requirements for more than the minimum must be fulfilled.

In addition to the university general education requirements (USP or CORE) and the specific requirements for each curriculum, the college requires that all majors complete EDHD 300 (or EDHD 419 A/B for Early Childhood), EDPA 301, and three semester hours of an approved speech course. A grade of C or better is required in all pre-professional and professional coursework required for the major. An overall grade point average of 2.5 must be maintained after admission to Teacher Education. A grade of S is required in student teaching.

Exceptions to curricular requirements and rules of the College of Education must be recommended by the student's advisor and department chairperson and approved by the dean.

Accreditation and Certification

All bachelor-degree teacher preparation programs are accredited by the National Council for Accreditation of Teacher Education and have been approved by the Office of Certification and Accreditation of the Maryland State Department of Education using standards of the National Association of State Directors of Teacher Education and Certification. Accreditation provides for reciprocal certification with other states that recognize national accreditation.

The Maryland State Department of Education issues certificates to teach in the public schools of the state. In addition to graduation from an approved program, the Maryland State Department of Education requires satisfactory scores on the National Teacher Exam (NTE) for certification. At the time of graduation, the college informs the Maryland State Department of Education of the graduate's eligibility for certification.

Special Resources and Opportunities

The College of Education offers many special resources and facilities to students, faculty, and the community. The Center for Educational Research and Development, Institute for the Study of Exceptional Children and Youth, the Music Educators National Conference Historical Center, the Reading Center and the Center of Rehabilitation and Manpower Services all are part of the College of Education. In addition, intended and declared education majors are likely to find the following resources particularly useful:

The Student Services Office
1210 Benjamin Building, 405-2344

The Student Services Office provides academic advising support for education students during admission, orientation, registration, graduation and certification. At other times, students who have been admitted to the College of Education receive academic advising through their departments.

The Office of Laboratory Experiences
1210 Benjamin Building, 405-5604

The Office of Laboratory Experiences (OLE) is the liaison unit between the college and the public school systems that serve as laboratories for the preparation of teachers. While the primary role of the OLE is to provide teacher education students with sites for internships, student teaching and pre-student teaching classroom experience, the office also operates in-service programs for teachers and facilitates research and staff development activities in the schools. Placement coordinators are available in the OLE to answer questions, provide orientation programs and arrange all field experience placements.

University Credentials Service, Career Center
3121 Hornbake Library, 314-7226

All seniors graduating in the College of Education (except Industrial Technology majors) are required to complete a credentials file with the Career Center. Credentials consist of a record of a student's academic preparation and recommendations from academic and professional sources. An initial registration fee is required and enables the Career Center to send a student's credentials to interested educational employers, as indicated by the student. Students who are completing teacher certification requirements, or advanced degrees and are interested in a teaching, administrative or research position in education may also file credentials. (This service is also available to alumni.)

Other services include job vacancy listings in public/private schools and institutions of higher learning, on-campus interviews with state and out-of-state school systems, and information about and applications for school systems throughout the country.

Curriculum Laboratory
0220 Benjamin Building, 405-3176

The Curriculum Laboratory provides reference assistance and offers both general and subject-specific classroom orientations. Resources include curriculum guides, reference books, K-12 textbooks, exemplary instructional materials, research documents, standardized test specimens, and material placed on faculty reserve.

Educational Technology Center
0307 Benjamin Building, 405-3611

The Educational Technology Center provides a broad range of media services including: 1) distribution and loan of all types of equipment and materials, including operation of a closed circuit video system throughout the Benjamin Building; 2) development and production of instructional materials; 3) specialized facilities (computer lab, video classroom, tv studio, self-service production area, video viewing stations); 4) instruction in media production and utilization techniques; and 5) consultation on ways to develop and use technology effectively.

Center for Mathematics Education
2226 Benjamin Building, 405-3115

The Center for Mathematics Education provides a mathematics laboratory for undergraduate and graduate students, and a program of diagnostic and tutoring services for children and adolescents. These services are offered in conjunction with specific graduate and undergraduate courses in elementary and secondary school mathematics. Center faculty are engaged in research in mathematics education, serve as consultants to school systems and instructional publishers, and provide inservice teacher education in addition to graduate degree programs.

Center for Young Children
Cambridge Complex East, 405-3168

The Center for Young Children is part of the Institute for Child Study in the College of Education. It offers a creative learning experience for children three, four, and five years old whose parents are affiliated with the University. The Center engages in child study, curriculum development, and teacher training. Its research and observation facilities are available to parents, faculty, and other persons concerned with the care and education of young children.

Science Teaching Center
2226 Benjamin Building, 405-3161

The Science Teaching Center offers programs related to undergraduate and graduate science teacher education, science supervisor training, and basic research in science education, and provides aid to inservice teachers, to districts and science supervisors.

Student and Professional Organizations

The college sponsors chapters of Phi Delta Kappa; the Undergraduate Teachers Education Association (UTEA); a student national education association; and Kappa Delta Pi, an honor society in education. The Mary McLeod Bethune Society is a pre-professional organization concerned with minority issues and education. A chapter of the Council for Exceptional Children is open to undergraduate and graduate students in Special Education and the Department of Music sponsors a student chapter of the Music Educators National Conference (MENC).

In several departments there are informal organizations of students. Students should contact the individual departments or, in the case of college-wide groups, the Dean's office, for additional information regarding these organizations.

COLLEGE OF ENGINEERING (ENGR)
1131 Engineering Classroom Building, 405-3855

Dean: George E. Dieter
Undergraduate Student Affairs: 405-3855
Cooperative Engineering Education: 405-3863
Center for Minorities in Science and Engineering: 405-3878

The mission of the College of Engineering is to provide quality engineering education, with sufficient scope to include both fundamental and specialized engineering training, so that graduates are prepared to serve the current and emerging needs of society. Just as the boundary between the functions of engineers and applied scientists or mathematicians is becoming less distinct, the various branches of engineering increasingly interact as technical problems become more sophisticated and require interdisciplinary approaches to their solutions. In addition to its teaching role, the college feels a related responsibility to conduct strong research programs that contribute to the advancement of knowledge.

Engineers also occupy an intermediary position between scientists and the public because, in addition to understanding scientific principles, they are concerned with the timing, economics, and values that define the use and application of those principles. With this in mind the college fosters a close partnership with industry and government, and also reaches out to both the campus community and the community at large with its services.

Entrance Requirements

Preparation for pursuing an engineering degree begins in the freshman or sophomore year of high school. The time required to complete the various degree programs may be extended beyond the four years cited in this catalog to the extent that incoming students may be deficient in their high school preparation. Therefore, students interested in studying engineering should enroll in the appropriate academic program in high school. This course of study should include 3-1/2 to 4 years of college preparatory mathematics (including algebra, geometry, trigonometry, and pre-calculus mathematics). In addition, students should complete one year each of physics and chemistry.

Admission to the College of Engineering is competitive for both freshmen and transfer students. Applicants who have designated a major within the College of Engineering will be selected for admission on the basis of academic promise and available space. Because of space limitations, the College of Engineering may not be able to offer admission to all qualified applicants. The University of Maryland at College Park urges early application. Applicants admissible to the university but not to the college will be offered admission to the Division of Letters and Science. This does not assure eventual admission to the College of Engineering. For consideration of appeals for admission contact the Office of Undergraduate Admissions. Minority and women students are encouraged to apply for admission.

Freshmen

Limited Enrollment status for this college has been approved. Students should check with the Office of Undergraduate Admissions, the college or the department for updated information.

Admission to College of Engineering

See the Admissions section in this catalog for information on general LEP admissions policies.

Freshman Admission and the 45 Credit Review. Most first-time entering freshmen will gain admission to the College of Engineering directly from high school, as allowed by space considerations within the College. Engineering has historically had more requests for its majors than can be accommodated, so freshmen generally need to present an above-average high school record and a strong math SAT score to gain admission. Because space may be limited before all interested, eligible freshmen are admitted to the program, early application is encouraged. Freshmen admitted to the program will have access to the necessary advising

through their initial semesters to help them determine if Engineering is an appropriate area for their interests and abilities.

Freshmen who are admitted directly to Engineering will be subject to a performance review by the time they have completed 45 credits. To meet the provisions of the review, these students must meet the **campus retention criteria**. Students who do not meet this standard will not be allowed to continue in the LEP and will be required to select another major.

Transfer Admission. The following requirements affect new transfer students to the university as well as on-campus students hoping to change majors into the College. Admission of transfer students may be severely limited, and capacity is determined each year in accordance with the success of incoming freshmen.

In order to be admitted to Engineering, transfer students will be required to meet the following set of gateway requirements: (1) completion of CHEM 113, MATH 141, and PHYS 161 with a minimum grade of C in each; and (2) attainment of a minimum cumulative GPA for all college-level work attempted. The required GPA is set each year and may vary from year to year depending upon available space. Contact the College of Engineering or the Office of Undergraduate Admissions for the current GPA standard.

Appeals. Students who are unsuccessful in gaining admission to Engineering at the freshman or transfer level, and believe they have extenuating or special circumstances which should be considered, may appeal in writing to the Office of Undergraduate Admissions. The student will be notified in writing of the appeal decision once it is made.

Students admitted to Engineering as freshmen who do not pass the 45 credit review but believe they have special circumstances which should be considered may appeal directly to the College.

For further information, contact the Counselor for Limited Enrollment Programs at 301-314-8378.

Transfer

All new transfer students, as well as students currently enrolled at the University of Maryland at College Park asking to be admitted to the College of Engineering, must meet the competitive admission requirements in effect for the semester in which they plan to enroll. The requirements for admission to all programs are

1. Attainment of a cumulative grade point average which equals or exceeds the minimum set to meet the competitive admission requirements.
2. Completion of the following three gateway courses or their equivalents with a minimum grade of "C" in each: MATH 141, CHEM 113, and PHYS 161.

Special Notes

1. Students with a previous B.A. or B.S. degree will be admitted to the College of Engineering with a minimum GPA of 3.0 and completion of the five prerequisites (MATH 140, MATH 141, CHEM 103, CHEM 113, and PHYS 161).
2. UMBC and UMES students will be admitted to the College of Engineering with official verification of their enrollment in engineering programs at their respective universities.
3. Maryland community colleges and Northern Virginia Community College students who meet the freshmen admission requirements but choose to attend a community college have the following options:
   a. Remain at the community college in an articulated engineering program and complete at least 56 credits, after which time the student will be admitted to the college on application provided that he/she has at least a 2.0 GPA at the community college. (This will apply to all majors within the college except aerospace and electrical engineering.) The student must supply the high school transcript and SAT scores. In the event that the community college does not offer a 56-credit articulated engineering program, the student may transfer earlier.
   b. Transfer immediately to the college provided the student has completed the five required courses (MATH 140, MATH 141, CHEM 103, CHEM 113, and PHYS 161) and meets the competitive GPA for the semester of intended enrollment on the College Park campus.

*Please Note That Minimum GPAs Are Subject To Change Each Semester.

Graduation Requirements

Structure of Engineering Curricula: Courses in the normal curriculum or program and prescribed credit hours leading to the degree of Bachelor of Science (with curriculum designation) are outlined in the sections describing each department in the College of Engineering. No student may modify the prescribed number of hours without special permission from the Dean of the college. The courses in each curriculum may be classified in the following categories:

1. Courses in the CORE Liberal Arts and Science Studies Program.
2. Courses in the physical sciences, mathematics, chemistry, physics.
3. Related technical courses, engineering sciences and other courses approved for one curriculum but offered by another department
4. Courses in the major department. A student should obtain written approval for any substitution of courses from the department chair and the Dean of the college. The courses in each engineering curriculum, as classified below, form a sequential and developmental pattern in subject matter. In this respect, curricula in engineering may differ from curricula in other colleges. Some regulations which are generally applicable to all students may need clarification for purposes of orderly administration among engineering students (see the Academic Regulations section of this catalog). Moreover, the College of Engineering establishes policies which supplement the university regulations.

College Regulations

1. The responsibility for proper registration and for satisfying stated prerequisites for any course must rest with the student as does the responsibility for proper achievement in courses in which the student is enrolled. Each student should be familiar with the provisions of this catalog, including the Academic Regulations.
2. Required courses in mathematics, physics, and chemistry have highest priority; and it is strongly recommended that every engineering student register for mathematics and chemistry or mathematics and physics each semester until the student has fully satisfied requirements of the College of Engineering in these subjects.
3. To be eligible for a bachelor's degree in the College of Engineering, a student must have an overall average of at least a C (2.0) and a grade of C or better in all engineering courses (courses with an EN prefix). Responsibility for knowing and meeting all graduation requirements in any curriculum rests with the student.
4. All students are required to complete a number of general education courses and must follow the university's requirements regarding completion of the general education (CORE) Program. Consult the Academic Regulations section of this catalog for additional information. Engineering students who began college level work (either at the University of Maryland or at other institutions) during the Fall 1989 semester or later are required to complete a junior level English course (with the exception of Agricultural Engineering students) regardless of their performance in Freshmen English classes. This represents a college policy, not a university-wide policy. Students beginning college-level work in the Fall 1989 semester must also plan their general education (CORE) courses to reflect depth as well as breadth. They should plan to take at least two courses (preferably a lower level and upper level course) which follow a theme area or provide more than simply introductory level study in one general studies department of their choice.
5. All degree programs in the College of Engineering require a minimum of 120 credits plus satisfaction of all department, college, and University general education (CORE) Program requirements. Students should be aware that for all currently existing engineering programs the total number of credits necessary for the degree will exceed 120 by some number that will depend on the specific major and the student's background.

Curricula for the various engineering departments are given in this catalog to illustrate how the programs can be completed in four years. These curricula are rigorous and relatively difficult for the average student. Surveys have shown that only about one-third to one-half of the students actually receive an engineering degree in four years. The majority of students (whether at Maryland or at other engineering schools nationwide) complete the engineering program in four and one-half to five years. It is quite feasible for a student to stretch out any curriculum; this may be necessary or desirable for a variety of reasons. However, students should seek competent advising in order to ensure that courses are taken in the proper sequence.

All students are urged to speak to a counselor in the College of Engineering Student Affairs Office at least two semesters before graduation to review their academic progress and discuss final graduation requirements.

Advising

Advising is available by appointment Monday through Friday, from 9:00 a.m. to 11:30 a.m and 1:00 p.m. to 3:30 p.m. in the College of Engineering Student Affairs Office, 1131 Engineering Classroom Building, 405-3855. In addition, advising is available in the departments. See advising section in the specific engineering department entry for times and location.

Departments and Degrees

The College of Engineering offers the degree of Bachelor of Science in the following fields of study: Aerospace Engineering, Agricultural Engineering (see also College of Agriculture), Chemical Engineering, Civil Engineering, Electrical Engineering, Fire Protection Engineering, Mechanical Engineering, Nuclear Engineering, Undesignated Engineering (Engineering Option and Applied Science Option).

All of the above programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology except the Applied Science Option of the Undesignated Engineering degree.

The Freshman-Sophomore Years

The freshman and sophomore years in engineering are designed to lay a strong foundation in mathematics, physical sciences, and the engineering sciences upon which the student will later develop a professional program during the upper division (junior and senior) years. The college course requirements for the freshman year are the same for all students, regardless of their intended academic program, and about 75 percent of the sophomore year course requirements are common, thus affording the student maximum flexibility in choosing a specific engineering specialization.

Engineering Sciences

Engineering Science courses represent a common core of basic material offered to students of several different departments. All freshman and sophomore students of engineering are required to take ENES 100 and ENES 102. Other ENES courses, 220, 221, 230, and 240, are specified by the different departments or taken by the student as electives. The responsibility for teaching the engineering science courses is divided among the Chemical, Civil, Electrical, and Mechanical Engineering departments. In addition to the core courses noted above, several courses of general interest to engineering or non-engineering students have been given ENES designations. See the List of Approved Courses in this catalog for further descriptions of these courses.

Freshman Curriculum

All freshmen in the College of Engineering are required to complete the following basic curriculum regardless of whether the student plans to proceed through one of the designated baccalaureate degree programs or follow any of the multidisciplinary nondesignated degree curricula that are sponsored by the college.

	Semester Credit Hours I	II
CHEM 103, 113—General Chemistry I, II	4	4
PHYS 161—General Physics		3
MATH 140, 141—Calculus I, II	4	4
ENES 100—Introduction to Engineering Design	2	
ENES 102—Statics		2
ENES 103—Fortran for Engineers		1
CORE Program Requirements	6	3
ENGL 101—Introduction to Writing (Freshman English)*		
Total	16	17

*ENGL 101: Freshman English must be attempted before completion of thirty (30) credit hours.

Entering freshmen math placements are determined by performance on math placement exams. Placement in MATH 002 or MATH 115 will delay by a semester eligibility to take certain engineering courses.

Sophomore Year

During the sophomore year the student selects a sponsoring academic department (Aerospace, Agricultural, Chemical, Civil, Electrical, Fire Protection, Mechanical, or Materials and Nuclear Engineering) and this department assumes the responsibility for the student's academic guidance, counseling, and program planning from that point until the completion of the degree requirements of that department as well as the college. For the specific requirements, see the curriculum listing in each engineering department.

Dual Degree Program

The Dual Degree Program is a cooperative arrangement between the College of Engineering and selected liberal arts colleges which allows students to earn undergraduate degrees from both institutions in a five-year program. A student in the Dual Degree Program will attend the liberal arts college for approximately three academic years (minimum ninety semester hours) and the College of Engineering at the University of Maryland for approximately two academic years (minimum hours required determined individually approximately sixty semester hours).

Dual degree candidates may participate in any of the baccalaureate degree programs in the College of Engineering.

At the present time the participating institutions in Maryland and the District of Columbia are American University, Bowie State University, Columbia Union College, Coppin State College, Frostburg State University, Morgan State University, College of Notre Dame of Maryland, St. Mary's College of Maryland, Salisbury State University, Towson State University, Western Maryland College, Trinity College, and Washington College. Also participating in the program are Kentucky State University, King College in Tennessee, Shippensburg State University in Pennsylvania, and Xavier University in Louisiana.

Dual Degree Program in Engineering and German

The College of Engineering and the Department of German and Slavic Languages have established a dual degree program in Engineering and German in which students can simultaneously earn two baccalaureate degrees in both disciplines. The program provides eight weeks in Germany studying intensive technical German at the Carl Duisberg Sprachcolleg and a four to six month paid internship in German industry.

For further information about this program, students should contact the Engineering Student Affairs Office (405-3855) or the Department of German and Slavic Languages and Literature, 405-4091.

The Japan Technological Affairs Program

The Japan Technological Affairs Program offers students in the College of Engineering intensive Japanese language instruction, workshops, and activities related to Japanese culture and society to prepare students for year long internships in Japan in a Japanese laboratory or company. The program is coordinated between the College of Engineering and the Department of East Asian Languages. Students complete their baccalaureate studies in engineering and receive the intensive Japanese instruction in summer classes in the University's Language House and classes during the academic year to prepare the future engineer to operate with ease in Japan's research community.

For further information about this program, students should contact the Engineering Student Affairs Office (405-3855).

Engineering Transfer Programs

Most of the community colleges in Maryland provide one- or two-year programs which have been coordinated to prepare students to enter the sophomore or junior year in engineering at the University of Maryland. These curricula are identified as Engineering Transfer Programs in the catalogs of the sponsoring institutions. The various associate degree programs in technology do not provide the preparation and transferability

into the professional degree curricula as the designated transfer programs. A maximum of one-half of the degree credits (sixty to sixty-five semester hours) may be transferred from a two-year community college program.

There may be six to eight semester hours of major departmental courses at the sophomore level which are not offered by the schools participating in the engineering transfer program. Students should investigate the feasibility of completing these courses in summer school at the University of Maryland before starting their junior coursework in the fall semester.

Financial Assistance

The College of Engineering awards some merit-based scholarships. These awards are designated primarily for juniors and seniors in the college. Students must submit an application and all supporting documents by February 15 in order to be considered for scholarship assistance for the ensuing year. For additional information, contact the Student Affairs Office, 1131 Engineering Classroom Building, 405-3855.

Honors

The College of Engineering offers an Engineering Honors Program that provides eligible students the opportunity to pursue an enriched program of studies which will broaden their perspectives and increase the depth of their knowledge. This program is available to students who meet the following criteria:

1. 3.5 overall GPA
2. 3.5 engineering GPA
3. Junior standing or 65 applicable credits.

In completing the program, all engineering Honors students must:

1. Submit an Honors research project necessitating a paper and oral presentation worth three hours of credit.
2. Successfully complete two semesters of the Engineering Honors Seminar (ENES 388, 1 credit each).
3. Maintain a 3.3 GPA.

For additional information, contact the Student Affairs Office, 1131 Engineering Classroom Building, 405-3855.

Research and Service Units

The Center for Minorities in Science and Engineering

1134 Engineering Classroom Building, 405-3878
Director: Rosemary L. Parker

The Center is dedicated to increasing the enrollment and graduation rates of African-American, Hispanic, and Native American students majoring in engineering. The Center provides a complete package of services designed to assist students from the time they are considering engineering as a major to their successful graduation. Services include *academic advising, tutorial assistance, scholarship information, the BRIDGE Program, the Mentor Program, outreach programs, job information and support of student organizations.* All services are free of charge and can be utilized on a walk-in or appointment basis.

Cooperative Engineering Education

1137 Engineering Classroom Building, 405-3863
Director: Heidi Winick Sauber

Cooperative education (co-op) is an optional academic program that combines classroom theory with career-related work experience. Through co-op, students alternate semesters of full-time study with semesters of full-time paid employment for a total of fifty work weeks. Co-op is designed to enhance a student's academic training, professional growth, and personal development. Co-op students earn a Bachelor of Science degree with co-op distinction and complete the same academic requirements as all other students. Students are eligible after completing their freshman and sophomore engineering requirements provided they maintain a minimum 2.0 grade point average.

The benefits of co-op include: 1) Integration of theory and application, 2) Professional level experience to offer future employers, 3) Confirmation of career decisions and invaluable professional contacts, 4) Development of leadership skills and self-confidence, and 5) Ability to finance educational expenses.

Summer Undergraduate Employment Program

The Summer Undergraduate Employment Program (SUEP) is designed to assist academically talented engineering, computer science, and physics students in finding exciting summer work experiences with companies located throughout Maryland. SUEP enables students to build a solid foundation for future career plans, network with professionals in their field, and earn money while gaining invaluable hands-on experience. To participate, a student must be a junior or non-graduating senior and have a minimum cumulative G.P.A. of 3.0.

Instructional Television System

2104 Engineering Classroom Building, 405-4910
Director: Arnold E. Seigel

The University of Maryland's Instructional Television System (ITV) is headquartered in the College of Engineering. Each semester, over sixty regularly scheduled graduate and undergraduate classes are held in ITV's studio classrooms and broadcast "live" to government agencies and businesses in the greater Washington and Baltimore area. Students in the remote classrooms watch the broadcasts on large TV monitors. They are able to talk to the instructors and other students using a phone-line "talk back" system. In addition to academic courses, professional development courses on extremely current topics are offered via satellite to engineers and managers throughout the United States. Through the ITV system, working adult students are able to progress toward graduate degrees, primarily in engineering and computer science, without leaving their places of work.

Undergraduate Research Programs

Undergraduate research programs allow qualified undergraduate students to work with research laboratory directors in departments, thus giving students a chance for a unique experience in research and engineering design. Projects in engineering allow undergraduate students to do independent study under the guidance of faculty members in an area of mutual interest. For more information contact your designated engineering department.

Undergraduate Research Participation Award

Institute for Systems Research

A. V. Williams Building, 405-6613

The Institute for Systems Research (ISR) has available Undergraduate Research Participation Awards (URPA) for full-time engineering students who have a minimum grade point average of 3.0. The total URPA stipend is $4,000 for a one year period. Interdisciplinary research is conducted in Chemical Process Control, Systems Integration, Manufacturing Systems, Communication Systems, Signal Processing, and Intelligent Servomechanisms. Applications and supporting documents must reach the ISR by April 1st for the summer/fall semesters and November 1st for the spring semester.

Academic Computing

1131 Engineering Classroom Building, 405-3872
Director: Jayanta (Joy) K. Sircar

Recognizing that state-of-the-art technological developments in computing provide a significant contribution to the advancement of engineering learning and research, the College of Engineering provides a computing and communications environment that will be the standard for engineers in the years ahead. Using a local area net, approximately 2 miles long and spanning six buildings, in a distributed computing framework, the network supports nearly 500 workstations. These workstations include approximately 180 Sun Microsystems, 90 Macintosh II's, 90 IBM Pc's and PS/2's and their clones, 50 VAXstations and DECstations, and 25 Hewlett-Packards. Additional systems include those from vendors such as IBM, Silicon-Graphics, NeXT, Solborne, Symbolics, Texas Instruments, and Tektronix. Further, the College of Engineering network can access not only other University of Maryland facilities but all computing facilities in the nation supported by Internet, as well as other countries in the world using Bitnet.

Student Organizations

Professional Societies

Each of the engineering departments sponsors a student chapter or student section of a national engineering society. The student chapters sponsor a variety of activities including technical meetings, social gatherings, and college or university service projects. Students who have selected a major are urged to affiliate with the chapter in their department. These organizations are American Helicopter Society, American Institute of Aeronautics and Astronautics, American Institute of Chemical Engineers, American Nuclear Society, American Society of Agricultural Engineers, American Society of Civil Engineers, American Society of Mechanical Engineers, Black Engineers Society, Institute of Electrical and Electronics Engineers, Society of Asian Engineers, Society of Automotive Engineers, Society of Fire Protection Engineers, Society of Hispanic Engineers, and Society of Women Engineers.

Honor Societies

The College of Engineering and each of the engineering departments sponsor honors societies. Nominations or invitations for membership are usually extended to junior and senior students based on scholarship, service and/or other selective criteria. Some of the honors organizations are branches of national societies; others are local groups: Tau Beta Pi (College Honorary); Alpha Epsilon (Agricultural Engineering); Alpha Nu Sigma (Nuclear Engineering); Chi Epsilon (Civil Engineering); Eta Kappa Nu (Electrical Engineering); Omega Chi Epsilon (Chemical Engineering); Pi Tau Sigma (Mechanical Engineering); Salamander (Fire Protection Engineering); and Sigma Gamma Tau (Aerospace Engineering).

COLLEGE OF HEALTH AND HUMAN PERFORMANCE (HLHP)

(Formerly College of Physical Education, Recreation and Health)

3310 HLHP Building, 405-2438; Records, 405-2442

Dean: Dr. John J. Burt
Associate Dean for Academic Affairs: Jerry Wrenn

The College of Health and Human Performance provides preparation leading to the Bachelor of Science degree in the following professional areas: Physical Education (three certification options), Health Education (school and community), and Family Studies. The college also offers curricula in Kinesiological Sciences and Safety Education. In addition, each department offers a wide variety of courses for all university students. These courses may be used to fulfill the general education requirements and as electives.

Programs combining research, service and instruction are provided by the Children's Health and Developmental Clinic, the Adults' Health and Developmental Program, and the Sports Medicine and Physical Fitness Center. More detailed information regarding these program offerings is available through the individual departments.

Advising

At the time of matriculation and first registration, each student is assigned to a member of the faculty of the college who acts as the student's academic advisor. These assignments are made by the individual departments and depend upon the student's chosen major. Students who are enrolled in the college, but who are undecided regarding their major, should contact the Associate Dean, 3310H HLHP Building, 405-2442.

Departments and Degrees

The College of Health and Human Performance offers the baccalaureate degree in the following fields of study: Physical Education, Kinesiological Sciences, Health Education and Family Studies. The degree of Bachelor of Science is conferred upon students who have met the conditions of their curricula as herein prescribed by the College of Health and Human Performance.

Each candidate for a degree must file a formal application with the Records Office according to the scheduled deadlines for the anticipated semester of graduation.

Honors

Phi Alpha Epsilon. Honorary Society of the College of Health and Human Performance. The purpose of this organization is to recognize academic achievement and to promote professional growth by sponsoring activities in the fields of physical education, kinesiology, family studies and health, and related areas.

Students shall qualify for membership at such times as they shall have attained junior standing in physical education, kinesiology, family studies, or health, and have a minimum overall average of 2.7 and a minimum professional average of 3.1. Graduate students are invited to join after ten hours of work with a 3.3 average. For additional information, please contact Dr. Donald Steel, 405-2490.

Special Resources and Opportunities

Gymkana Troupe. The Gymkana troupe is a group of highly disciplined young men and women who place a high priority on education and who engage in gymnastics for purposes of recreation, health and personal development. Each member has pledged himself or herself to a drug-free lifestyle in hopes of acting as a role model so others might be motivated to do the same. Gymkana travels throughout the United States during February and March, performing once a week, and ending the season with its annual gymnastic performance at the university. Membership is open to all students regardless of their gymnastic ability. Gymkana is co-sponsored by the College of Health and Human Performance and the Student Government Association. For additional information, please contact Dr. Joe Murray, 405-2566.

Research and Service Units

Center on Aging

2304 HLHP Building, 405-2469
Director and Professor: Dr. Laura B. Wilson
Associate Professor: Dr. James M. Hagberg and Dr. Mark R. Meiners

The Center on Aging stimulates and supports aging-related activities within existing departments, colleges, and schools throughout all of the various institutions of the University of Maryland. The center coordinates the Graduate Gerontology Certificate (Master's and Doctoral levels), the university's first approved graduate certificate program. The center assists undergraduate and graduate students interested in the field of gerontology and helps them to devise educational programs to meet their goals. It is a research center working in physiology, economics and policy. It also conducts community education programs, assists faculty in pursuing research activities in the field of aging, conducts conferences on adulthood and aging- related topics, and provides on- and off-campus technical assistance to practitioners who serve older adults.

For further information on any of the center's activities call, write or visit the Center on Aging.

Course Code: HLHP

COLLEGE OF JOURNALISM (JOUR)

Journalism Building, 405-2399

Dean and Professor: Cleghorn
Associate Dean and Professor: Levy
Assistant Dean: Stewart
Professors: Beasley, Blumler, Gomery, Gurevitch, J. Grunig, Hiebert, Holman, Martin (Emeritus), Roberts
Associate Professors: Barkin, Ferguson, L. Grunig, Paterson, Stepp, Zanot
Assistant Professors: Keenan, McAdams, Roche, Smith, Zerbinos
Instructors: Callahan, Harvey, Rhodes

Howard Bray, Director of Knight Center for Specialized Journalism
Frank Quine, Director of Advancement
Carroll Volchko, Director of Business Administration
Give Reid, Director of Undergraduate Programs

Located just nine miles from the nation's capital and 30 miles from the bustling commercial port of Baltimore, the College of Journalism at the University of Maryland is one of only six comprehensive journalism

schools in the 10 states stretching from New York to Virginia—the nation's most populous region. But the college has a lot more than geography going for it. In a study by the Gannett Center for Media Studies at Columbia University, the college recently was designated one of "Eleven Exemplary Journalism schools" nationwide: those that surpass others in criteria including teaching, research, facilities and job placement.

Founded in 1947, the college has been accredited for close to three decades by the Accrediting Council on Education in Journalism and Mass Communication. Since it is within easy reach of the offices of Washington and Baltimore newspapers and the Washington bureaus of news organizations such as The New York Times, the Associated Press and the major networks, it is an ideal place for the study of journalism and mass communication. Students have internship opportunities at a variety of media, non-prolit, government and international agencies. Talented adjunct faculty members are also tapped from these organizations to enhance curriculum offerings.

After successful completion of a basic writing and editing skills series of courses, majors are provided the following sequences in which to focus their remaining journalism curriculum: news-editorial, public relations, broadcast news, advertising. Within the news-editorial sequence, emphases are provided in the areas of news and magazine.

Admission to College of Journalism

See the Admissions section in this catalog for general LEP admissions policies.

Freshman Admission and the 45 Credit Review. Most first-time entering freshmen will gain admission to the College of Journalism directly from high school, as allowed by space considerations within the College. Because space may be limited before all interested freshmen are admitted to the program, early application is encouraged. Freshmen admitted to the program will have access to the necessary advising through their initial semesters to help them determine if Journalism is an appropriate area for their interests and abilities.

Freshmen who are admitted directly to Journalism will be subject to a performance review by the time they have completed 45 credits. To meet the provisions of the review, these students must complete: (1) Fundamental Studies; (2) 60% of Distributive Studies; (3) ENGL 101 and JOUR 201 with grades of C; and (4) a minimum cumulative GPA of 2.0. Enrollment in JOUR 201 requires proof of grammar skills competency through attainment of a minimum score of 52 on the Test of Standard Written English (TSWE), 61 on the Test of Language Skills (TLS), or 22 on the ACT English usage subsection. Students who do not meet these requirements will not be allowed to continue in the LEP and will be required to select another major.

Transfer Admission. These requirements affect new transfer students to the university as well as on-campus students hoping to change majors to the College. Admission of transfer students may be severely limited, and capacity is determined each year in accordance with the success of incoming freshmen.

In order to be admitted to Journalism, transfer students will be required to meet the following set of gateway requirements: (1) completion of Fundamental Studies; (2) completion of 60% of Distributive Studies; (3) completion of ENGL 101 and JOUR 201 with grades of C; and (4) attainment of a minimum cumulative GPA for all college-level work attempted. Enrollment in JOUR 201 requires proof of grammar skills competency through attainment of a minimum score of 52 on the Test of Standard Written English (TSWE), 61 on the Test of Language Skills (TSL), or 22 on the ACT English usage subsection. The required GPA is set each year and may vary from year to year depending upon available space. Contact the College of Journalism or the Office of Undergraduate Admission for the current GPA standard.

Appeals. Students who are unsuccessful in gaining admission to Journalism at the freshman or transfer level, and believe they have extenuating or special circumstances which should be considered, may appeal in writing to the Office of Undergraduate Admission. The student will be notified in writing of the appeal decision once it is made.

Students admitted to Journalism as freshmen who do not pass the 45 credit review but believe they have special circumstances which should be considered may appeal directly to the College.

For further information, contact the Counselor for Limited Enrollment Programs at 301-314-8378.

Degrees

The College of Journalism offers the B.A., M.A. and Ph.D. degrees. At the undergraduate level, students are required to specialize in one of the four sequences offered. All diplomas are in Journalism.

Graduation Requirements

Students are required to earn a minimum of 121 credits. Accrediting regulations require three-fourths of a student's coursework (a minimum of 90 credits) be in areas other than mass communication (such as speech) or journalism. A minimum of 65 of those 90 credits must be earned in liberal arts designated courses. A grade of "C" or better must be earned in JOUR 201 and JOUR 202 prior to taking courses for which they serve as prerequisites. Students must have a "C" average in their major.

Students are also required to demonstrate abstract thinking skills. As a measure, majors are offered either a language option, a mathematics option, or a combination of the two. Language skills must be demonstrated by taking coursework through the intermediate level. The Math option requires that students complete the following courses: statistics, calculus and computer science.

A support area consisting of four upper-level courses in a concentrated field is also required of Journalism majors. Students must also complete a minimum of 57 credits at the upper level. Finally, in addition to university graduation requirements, Journalism majors must complete additional liberal arts coursework with one course each in government and politics, public speaking, psychology and economics and one course in sociology, anthropology or history.

Journalism Academic Programs

I. Required courses for all Journalism majors:

A. Non-journalism course requirements

1. Abstract thinking skills requirement:

   Completion of a minimum of nine credits through one or a combination of the following options. Should a student choose to combine the options, at least one language course must be at the intermediate level:

   a. Language—any skills language course(s). Up to three courses with at least one course at the intermediate level and no more than one course at the introductory level. (High school equivalency does not satisfy this requirements.)

   b. Math/Statistics/Computer Science—Up to three courses including no more than one course from each category.

      i. One of the following math courses: MATH 111, 115, 140 or 220 or any course for which any of these serves as a prerequisite.

      ii. One of the following statistics courses: AREC 484, BIOM 301, BMGT 230, CNEC 400, ECON 321, EDMS 451, GVPT 422, PSYC 200, SOCY 201, GEOG 305, TEXT 400, URBS 350, or a more advanced statistics course.

      iii. One of the following computer science courses—CMSC 103, 104 or any higher-level CMSC course.

2. A course in public speaking chosen from SPCH 100, 107, 200 or 230.

3. One of the following:
   A. Sociology 100 or 105
   B. Anthropology 101
   C. HIST 156 or 157.

4. PSYC 100 or 221.

5. ECON 201, 203 or 205.

6. GVPT 100 or 170. (For news-editorial students, GVPT 260 or 460 is also required.)

7. Four upper level (numbered 300 or higher) courses for a minimum of 12 credits in a supporting field (may not be in Speech or Radio-TV-Film).

B. Journalism course requirements:

	Credit
JOUR 101—Professional Orientation	1
JOUR 201—Writing for the Mass Media	3
JOUR 202—Editing for the Mass Media	3
JOUR 400—Law of Mass Communication	3

II. Required courses for Journalism sequences:

A. Advertising

JOUR 340—Advertising Communication	3
JOUR 341—Advertising Techniques	3
JOUR 342—Advertising Media Planning	3
JOUR 346—Supervised Internship	3
JOUR 477—Mass Communication Research	3
JOUR 484—Advertising Campaigns	3
At least one additional upper-level journalism course numbered 410-480	3

B. Broadcast News

JOUR 360—Broadcast News 1	3
JOUR 361—Broadcast News 2	3
JOUR 365—Theory of Broadcast Journalism	3
At least one additional upper-level journalism course numbered 410-480	3
Journalism and Radio-TV-Film electives (chosen with permission of advisor: 366 recommended)	9

C. Public Relations

JOUR 330—Public Relations Theory	3
JOUR 331—Public Relations Techniques	3
JOUR 336—Supervised Internship	3
JOUR 477—Mass Communication Research	3
JOUR 483—Senior Seminar in Public Relations	3
Additional Writing Course (320, 332* or 360)	3
Upper-Level Journalism Electives (333, 334 recommended or an second additional writing course; 320, 321, 332, 360, 361, 371, 380*, 481)	3

*Recommended for students preparing for science writing positions in the public relations department of a scientific or technical organization.

D. News-Editorial
(GVPT 260 is a News-Editorial Sequence requirement for all specializations.)

i. News Specialization

JOUR 320—News Reporting	3
JOUR 350—Photojournalism or JOUR 373—Graphics	3
JOUR 321—Public Affairs Reporting or JOUR 322—Beats and Investigations	3
Advanced Writing and Reporting Course (323, 324, 328, 371 and 380 recommended)	3
Elective Journalism course (between 410 and 480)	3
Upper-Level Journalism Electives (326 recommended)	6

ii. Magazine Specialization

JOUR 320—News Reporting	3
JOUR 371—Feature Writing	3
JOUR 373—Graphics	3
JOUR 326—Supervised Internship	3
One of the following: JOUR 380—Science Writing for Magazines and Newspapers JOUR 481—Writing the Complex Story JOUR 487—Literary Journalism	3
Upper-Level Elective Journalism course (between 410 and 480)	3
Upper-Level Journalism Elective	3

iii. Photojournalism Specialization

JOUR 320—News Reporting	3
JOUR 350—Photojournalism	3
JOUR 351—Advanced Photojournalism	3
JOUR 373—Graphics	3
JOUR 326—Internship	3
Upper-Level Elective Journalism course (between 410 and 480)	3
Upper-Level Journalism Elective	3

Advising

The Office of Student Services, 1119 Journalism Building, 405-2399, provides academic advising to majors on an appointment basis.

Honors and Awards

Although no honors program currently exists within the college, academically outstanding students are recognized through Kappa Tau Alpha, the Journalism academic honor society.

Adams Sandler Award. Awarded annually to the outstanding graduate in the Advertising sequence.

Broadcast News Sequence Award. Awarded at each commencement to the outstanding graduate in the Broadcast News Sequence.

Public Relations Award. Awarded at each commencement to the outstanding graduate in the Public Relations Sequence.

News-Editorial Award. Awarded at each commencement to the outstanding graduate in the News-Editorial sequence and its specializations.

Sigma Delta Chi/Society of Professional Journalists Citation. Awarded annually to an outstanding journalism student.

Kappa Tau Alpha Citation. Awarded at each commencement to the journalism student earning the highest academic achievement for all undergraduate study.

Field Work and Internship Opportunities

Supervised internships are required for the Public Relations and Advertising sequences along with the Magazine specialization within the News-Editorial sequence. Other students may take advantage of an internship as a journalism elective. No more than four mass-communication internship credits, regardless of the discipline in which they are earned, may be applied toward a student's degree. Dr. Greig Stewart is the Coordinator of the Journalism Internship Program, 1118 Journalism Building, 405-2380.

The Annapolis and Washington bureaus of the Capital News Service are staffed by students. Through curricular programs, students cover state and legislative news for client papers around the region. Students are required to report breaking news by afternoon deadlines, write profiles and cover state agencies. This is a full-time, semester-long program, on site at the two bureau locations.

For students in the Broadcast News Sequence, opportunity to gain experience with a cable news program entitled "Maryland Update" is presented within the curriculum.

Students may also earn internship or independent study credit through supervised experience gained at The Diamondback, the award-winning student daily newspaper for the University of Maryland at College Park. Other co-op and volunteer experiences are available to Journalism students through the university's Office of Experiential Learning in Hornbake.

Student Organizations

The college sponsors student chapters of the Society for Professional Journalists, the Public Relations Student Society of America, the National Association of Black Journalists, the Radio and Television News Directors' Association and the Advertising Club. These organizations provide students with opportunities to practice skills, establish social relationships with other students both on and off campus, and meet and work with professionals in the field.

Campus media opportunities abound. The campus radio station is WMUC. The student daily publication is The Diamondback. Student newspapers of interest to special populations include The Eclipse, Black Explosion and Mitzpeh.

For information on the organizations listed, contact the Student Services Office, 1117 Journalism Building, 405-2399.

Accreditation

The College of Journalism became accredited in 1960 by the Accrediting Council on Education in Journalism and Mass Communications. Standards set by the council are generated from professional and academic ethics and principles. This accrediting body underscores the liberal arts foundation of a journalism curriculum, limiting professional and skills courses to one-fourth of a student's academic program.

COLLEGE OF LIBRARY AND INFORMATION SERVICES (CLIS)

Dean: Dr. Claude E. Walston

The College of Library and Information Services is a graduate program accredited by the American Library Association. The undergraduate portion of the program has been discontinued.

COLLEGE OF LIFE SCIENCES (LFSC)

1224 Symons Hall, 405-2080

Dean: Dr. Paul H. Mazzocchi

The College of Life Sciences offers educational opportunities for students in subject matters relating to living organisms and their interaction with one another and with the environment. Programs of study include those involving the most fundamental concepts of biological science and chemistry and the use of knowledge in daily life as well as the application of economic and engineering principles in planning the improvement of life. In addition to pursuing the baccalaureate degree, a number of students in this college engage in pre-professional education in such fields as pre-medicine, pre-dentistry, and pre-veterinary medicine.

The student may obtain a Bachelor of Science degree with a major in any of the departments and curricula listed below. Students in pre-professional programs may, under certain circumstances, obtain a B.S. degree following three years on campus and one successful year in a professional school. For additional information on combined degree programs, see the entry on pre-professional programs in this catalog.

The College of Life Sciences includes the following departments and programs:

a. Departments: Botany, Chemistry and Biochemistry, Entomology, Microbiology, Zoology.
b. Program: General Biological Sciences

Admission

Students desiring a program of study in the College of Life Sciences should include the following subjects in their high school program: English, four units; college preparatory mathematics (algebra, plane geometry), four units; biological and physical sciences, two units; history and social sciences, one unit. They should also include chemistry and physics.

Advising

A faculty advisor will be designated to help select and design a program of courses to meet the needs and objectives of each entering student. As soon as a student selects a major field of study, an advisor representing that department or program will be assigned. All students must see their advisor at least once each semester.

Students following pre-professional programs will be advised by knowledgeable faculty. For further information on the pre-professional programs offered at College Park, see the entry in this catalog.

Area Resources

In addition to the educational resources on campus, students with specific interests have an opportunity to utilize libraries and other resources of the several government agencies located close to the campus. Research laboratories related to agriculture or marine biology are available to students with special interests.

Degree Requirements

Students graduating from the college must complete at least 120 credits with an average of 2.0 in all courses applicable towards the degree. Included in the 120 credits must be the following:

1. CORE (40 credits)
2. College Requirements:
   As of Fall 1988, all students in the College of Life Sciences must complete the following:
   CHEM 103, 113, or 103H, 113H
   CHEM 233, 243 or 233H, 243H
   *MATH 220, 221 or 140, 141
   PHYS 121, 122 or 141, 142
   BIOL 105 and 106

   *Chemistry and Biochemistry majors must take MATH 140, 141.

Honors

Students may apply for admission to the honors programs in Botany, Chemistry, General Biological Sciences, Microbiology, and Zoology. On the basis of the student's performance during participation in the Honors Program, the department may recommend candidates for the appropriate degree with (departmental) honors, or for the appropriate degree with (departmental) high honors. Successful completion of the Honors Programs will be recognized by a citation in the Commencement Program and by an appropriate entry on the student's record and diploma.

SCHOOL OF PUBLIC AFFAIRS (PUAF)

2101 MPA Building, 405-6330

Dean: Michael Nacht

The School of Public Affairs provides graduate-level, professional education to men and women interested in careers in public service. Five disciplines are emphasized: accounting, statistics, economics, politics, and ethics. Students specialize in issues of government/private sector interaction and trade policy, national security and arms control, public sector financial management, environmental policy, or social policy.

The school offers separate degrees for pre-career and mid-career college graduates. Recent college graduates may enroll in the fifty-one credit Master of Public Management (MPM) program which can be completed in two years by full-time students. This program combines a rigorous applied course of study with practical, hands-on experience. The school also offers joint degree programs with the College of Business and Management (MPM/MBA) and the School of Law (MPM/JD), and accepts a small number of Ph.D. candidates each year.

Public sector employees with a minimum of three years' work experience seek the Master of Public Policy (MPP) degree. This is generally a part-time, three-year, thirty-six credit program, but individuals wishing to complete the program sooner may do so by attending full-time.

Individuals who wish to improve their analytical and management skills without pursuing a degree may enroll in an 18-credit certificate program which mirrors the areas of specialization found in the masters degree programs.

For further information, call or write the School of Public Affairs.

CHAPTER 7

DEPARTMENTS AND CAMPUS-WIDE PROGRAMS

ACCOUNTING

For information, consult the College of Business and Management entry.

AEROSPACE ENGINEERING (ENAE)

College of Engineering

3181 Engineering Classroom Bldg., 405-2376

Professor and Acting Chair: Lee
Professors: Anderson, Chopra, Donaldson, Gessow, Lee, Melnik
Associate Professors: Akin, Barlow, Celi, Jones, Vizzini, Winkelmann
Assistant Professors: Leishman, Lewis
Lecturers: Chander, Haggar, Heimerdinger, Korkegi, Lekoudis, Obrimski, Regan, Russell, Vamos, Winblade, Yanta

The Major

Aerospace engineering is concerned with the physical understanding, related analyses, and creative processes required to design aerospace vehicles operating within and beyond planetary atmospheres. Such vehicles range from helicopters and other vertical takeoff aircraft at the low speed end of the flight spectrum to spacecraft operating at thousands of miles per hour during entry into the atmospheres of the earth and other planets. In between are general aviation and commercial transports flying at speeds well below and close to the speed of sound, and supersonic transports, fighters, and missiles which cruise at many times the speed of sound. Although each speed regime and each vehicle type poses its own special research, analysis and design problems, each can be addressed by a common set of technical specialties or disciplines.

These include aerodynamics, the study of how airflow produces effects on temperature, forces, and moments; flight dynamics, the study of the motion and flight path of vehicles; flight structures, the study of the mechanical behavior of materials, stresses and strains, deflection, and vibration; flight propulsion, the study of the physical fundamentals of how engines work; and the synthesis of all these principles into one system with a specific application such as a complete transport aircraft, a missile, or a space vehicle through the discipline of aerospace vehicle design.

The facilities of the department include several subsonic wind tunnels with sections ranging from a few inches up to the Glenn L. Martin Wind Tunnel with a 7.75 by 11 foot cross section which is the best of its class located at any university. There is a supersonic tunnel, equipment for the static and dynamic testing of structural components, and a flight simulator. The Center for Rotorcraft Education and Research (CRER) has established some unique experimental facilities to test helicopter models in simulated environments, including an automated model rig and computer-controlled vacuum chamber. The Composite Research Laboratory (CORE) has the facilities necessary to the manufacturing, testing and inspection of composite materials and structures, including an autoclave, an x-ray machine, and a 220 Kip Uniaxial test machine with hydraulic grips. The Space Systems Laboratory operates the Neutral Buoyancy Research facility for investigating assembly of space structures in a simulated zero gravity environment together with robots and their associated controllers. The department's computing facilities include microcomputers, Sun workstations, and terminals. There is network access to many minicomputers, the campus mainframes, and several supercomputing centers.

Requirements for Major

The Freshman curriculum is the same for all Engineering departments. Please consult the College of Engineering entry.

Sophomore Year	I	II
CORE Requirements	3	3
MATH 246—Differential Equations		3
MATH 241—Calculus III	4	
PHYS 262 and 263—General Physics	4	4
ENES 240—Engineering Computation	3	
ENES 221—Dynamics		3
ENAE 201, 202—Introduction to Aerospace Engineering I, II	2	2
ENES 220—Mechanics of Materials		4
Total	16	19
Junior Year		
CORE Requirements	3	3
MATH 240—Introduction to Linear Algebra	4	
ENME 217—Thermodynamics	3	
ENEE 300—Principles of Electrical Engineering	3	
ENAE 305—Aerospace Laboratory I		3
ENAE 345—Flight Dynamics		3
ENAE 451—Flight Structures I		4
ENAE 371—Aerodynamics I	3	
ENAE 471—Aerodynamics II		3
Total	16	16
Senior Year		
ENAE 452—Flight Structures II		3
ENAE 475—Viscous Flow and Aerodynamic Heating		3
ENAE 401—Aerospace Laboratory II (Fall)		2
ENAE 402—Aerospace Laboratory III (Spring)		1
ENAE 461—Flight Propulsion I		3
CORE Requirements		9
Design Elective [1]		3
Applied Dynamics Elective [2]		3
Aerospace Elective [3]		3
Technical Elective [4]		3
Total		33

Minimum Degree Credits: 120 credits and the fulfillment of all department, college, and university requirements.

[1] The students shall take one of the following design courses:
ENAE 411—Aircraft Design
ENAE 412—Design of Aerospace Vehicles
ENAE 488W—Design of Remotely Piloted Vehicles

[2] The student shall take one of the following:
ENAE 445—Stability and Control of Aerospace Vehicles
ENAE 355—Aircraft Vibrations
ENAE 488E—Aerospace Control Systems

[3] These three credits must be upper level Aerospace courses which are not used to satisfy other requirements. Courses listed under [1] or [2] and not used to meet those requirements are acceptable. Other courses frequently offered include:
ENAE 415—Computer-aided Structural Design Analysis
ENAE 453—Matrix Methods in Computational Mechanics
ENAE 473—Aerodynamics of High-Speed Flight
ENAE 488—Topics in Aerospace Engineering
ENAE 499—Elective Research

[4] These three credits must be a 400 level course in Engineering, Mathematics, or Physical Science that has been approved for this purpose by the department. A list is maintained and is available from the advisors. Courses listed under [1], [2], and [3] above and which are not used to meet one of those requirements may be elected to fulfill requirement [4].

Admission

See College of Engineering entrance requirements.

Advising

Advising is mandatory. Each student is assigned to one of the full time faculty members who must be consulted and whose signature is required on the request for course registration each semester. The list of advisor assignments is available in the main office, 405-2376.

Cooperative Program

Participation in the Co-op program is encouraged. See College of Engineering entry for details.

Financial Assistance

The department offers Glenn L. Martin Scholarships and a Zonta Scholarship. Students may obtain information/application forms in the main office.

Honors and Awards

The department makes the following awards: Academic Achievement Award for highest overall academic average at graduation; R.M. Rivello Scholarship Award for highest overall academic average through the junior year; Sigma Gamma Tau Outstanding Achievement Award for scholarship and service to the Student Chapter; American Helicopter Society Outstanding Achievement Award for service to the student chapter; American Institute of Aeronautics and Astronautics Outstanding Achievement Award for scholarship and service to the student chapter. Eligibility criteria are available in the department office.

Student Organizations

The department is home to student chapters of the American Institute of Aeronautics and Astronautics and the American Helicopter Society. Aerospace Engineering students are also frequent participants in student activities of the Society of Automotive Engineers.

Course Code: ENAE

AFRO-AMERICAN STUDIES PROGRAM (AASP)

College of Behavioral and Social Sciences

2169 Lefrak Hall, 405-1158

Acting Director: S. Harley
Associate Professors: S. Harley, E. Wilson* (GVPT.)
Assistant Professors: M. Lashley, R. Williams* (Economics), F. Wilson
* Joint Appointment with unit indicated.

The Afro-American Studies Program offers an interdisciplinary Bachelor of Arts degree in the study of the life and history of African Americans. The curriculum emphasizes the historical development of African American social, political and economic institutions, while preparing students to apply analytic, social science skills in the creation of solutions to the pressing socio-economic problems confronting African American communities.

Two program options lead to the Bachelor of Arts degree. Both require a twelve-credit core of course work that concentrates on Afro-American history and culture.

The general concentration provides a broad cultural and historical perspective. It requires 18 additional credit hours in one or more specialty areas within Afro-American Studies such as history, literature, government and politics, sociology or anthropology, as well as departmental seminars and a thesis.

The public policy concentration provides in depth training for problem solving in minority communities. It requires 21 additional credit hours in analytic methods, such as economics and statistics, 9 credit hours of electives in a policy area (with departmental approval) and an internship or a thesis or a departmental seminar. Substantive areas of study include the family, criminal justice, employment, health care, discrimination, and urban development.

Requirements for Major

Core Courses: AASP 100, 101 (formerly 300), 200, 202.

General Concentration: In addition to the core requirements, 18 credits of AASP Upper Division Electives (300-400 numbers), AASP 402 and AASP 397.

	Semester Credit Hours
CORE Liberal Arts and Sciences	43
AASP Core (total 12):	
AASP 100—Introduction to Afro-American Studies	3
AASP 101 (Formerly 300)—Public Policy and Black Community	3
AASP 200—African Civilization	3
AASP 202—Black Culture in the United States	3
Upper Division Electives	
AASP 310—African Slave Trade	3
AASP 312—Social and Cultural Effects of Colonization and Racism	3
AASP 400—Directed Readings in Afro-American Studies	3
AASP 410—Contemporary African Ideologies	3
AASP 411—Black Resistance Movements	3
AASP 498—Special Topics in Black Culture	3

Students may select, with AASP approval, elective courses from other departments.

Seminars

AASP 402—Classic Readings in Afro-American Studies	3
AASP 397—Senior Thesis	3

Public Policy Concentration: In addition to the core, three credits of statistics; six credits of elementary economics (ECON 201 and 203); AASP 301, AASP 303, AASP 305 or approved courses in other departments; nine credits of upper-division AASP electives in the policy area (AASP numbers 300-400) or, with approval, elective courses outside of AASP; and one of AASP 386/387 or AASP 397 or AASP 497.

	Semester Credit Hours
Core Liberal Arts and Sciences	43
AASP CORE (total 12):	
AASP 100—Introduction to Afro-American Studies	3
AASP 101 (Formerly 300)—Public Policy and the Black Community	3
AASP 200—African Civilization	3
AASP 202—Black Culture in the United States	3
ANALYTIC COMPONENT:	
AASP 301 (Formerly 428J)	3
AASP 303 (Formerly 428P)—Computer Applications in Afro-American Studies	3
AASP 305* (Formerly 401)—Theoretical, Methodological and Policy Research Issues in Afro American Studies	
ECON 201—Principles of Economics I	3
ECON 203 Principles of Economics II	3
STAT 100 Elementary Statistics and Probability OR SOCY 201 Introductory Statistics for Sociology OR Equivalent Statistics Course	3
One additional analytical course outside of AASP, with AASP approval	3
POLICY ELECTIVES:	
AASP 441—Science, Technology and the Black Community	3
AASP 443—Blacks and the Law	3
AASP 499—Advanced Topics in Public Policy and the Black Community	3

Students may select, with AASP approval, elective courses from other departments.

FINAL OPTION:
One of the following courses is required:

AASP 386—Internship	6
AASP 397—Senior Thesis	3
AASP 497—Policy Seminar in Afro-American Studies	3

*Required if you select the Senior Thesis option or Policy Seminar in Afro-American Studies.

Students must earn a grade of C (2.0) or better in each course that is to be counted toward completion of degree requirements. All related or supporting courses in other departments must be approved by an AASP faculty advisor.

Honors Program

Academically talented undergraduates may enroll in the University Honors Program with a specialization in Afro-American Studies. The honors program includes seminars and lectures presented by distinguished UMCP faculty and guests. A reduced ratio of students to faculty insures a more individualized study focus.

BA/MPM Program

An innovative joint program whose candidates earn a Bachelor's degree in Afro-American Studies and a Master's degree in public management after approximately five years. Designed to integrate the study of the history, culture and life of African Americans with technical skills, training and techniques of contemporary policy analysis, the BA/MPM program also features a summer component that includes a lecture series, research opportunities, and special seminars.

Admission into the BA/MPM program requires two steps:

Undergraduate
(1) Students must major in the public policy concentration within the Afro-American Studies program and maintain an overall GPA of 3.00 or greater.

Graduate
(2) Students apply to the joint program after completing 81 credit hours of undergraduate work. Applicants must meet both UMCP graduate and School of Public Affairs graduate admission requirements.

Eligibility

Freshmen or UMCP students in good academic standing with fewer than 60 credits are encouraged to apply.

Contact: The Afro-American Studies Program at 301-405-1158 for application and scholarship details.

Options for Study with AASP

For students who major in other departments, the Afro-American Studies Program offers three options for study:

1. The AASP Certificate in the general concentration or in the public policy concentration. Students may obtain a certificate by completing twenty-one credit hours of course work. To qualify for the certificate in AASP, students must take AASP 100, AASP 101 and AASP 200 or AASP 202; nine credits of upper division AASP electives**; and AASP 402.
   **Three of these credits may be taken outside of the department but permission is required from the AASP Advisor.
2. Students may designate Afro-American Studies as a double major study area, completing the major requirements for both AASP and another program.
3. AASP is the supporting area of study for Computer Science and Urban Studies and Planning majors, as it can be for other fields of study such as Business and/or Engineering.

Scholarships and Financial Aid:

1. John B. Slaughter Scholarships
2. Ford Foundation Scholarships

Advising

Undergraduates in good academic standing may enroll in the Afro-American Studies Program or obtain more information about available options and services by contacting Undergraduate Academic Advisor, Afro-American Studies Program, 2169 Lefrak Hall, University of Maryland, College Park, Maryland 20742, (301) 405-1158.

Course Code: AASP

AGRICULTURAL ENGINEERING (ENAG)

College of Agriculture/Engineering

1130 Shriver Laboratory, 405-1198

Chair: Stewart
Professors: Brodie, Johnson, Wheaton
Associate Professors: Grant, Kangas, Magette, Ross, Shirmohammadi, Stewart
Instructor: Carr
Emeriti: Felton, Green, Harris, Krewatch, Merrick

The Major

This program is for students who wish to become engineers but who also have serious interest in biological systems and how the physical and biological sciences interrelate. The biological and the engineering aspects of plant, animal, genetic, microbial, medical, food processing and environmental systems are studied. Graduates are prepared to apply engineering, mathematical and computer skills to the design of biological systems and facilities. Graduates find employment in design, management, research, education, sales, consulting or international service.

Requirements for Major

Emphasis areas include aquacultural engineering, biological engineering, plant systems engineering, animal systems engineering, food process engineering and natural resources engineering.

Agricultural Engineering Curriculum

Freshman Year	
ENES 100—Introduction to Engineering Design	2
*MATH 140—Calculus I	4
*CHEM 103—General Chemistry I	4
*BIOL 105—Principles of Biology I	4
or BIOL 106—Principles of Biology II	
ENGL 101—Introduction to Writing	3
Total	17
ENES 102—Statics	2
*MATH 141—Calculus II	4
*CHEM 104—Fundamentals of Organic and Bio Chemistry	4
*PHYS 141—Principles of Physics	4
*CORE[1]	3
Total	17
Sophomore Year	
MATH 241—Calculus III	4
*MICB 200—General Microbiology	4
ENES 220—Mechanics of Materials	4
*PHYS 142—Principles of Physics	4
ENES 103—Fortran for Engineers	1
Total	17
MATH 246—Differential Equations for Scientists and Engineers	3
ENES 221—Dynamics	3
ENME 217—Thermodynamics	3
ENAG 241—Computer Use in Bioresource Engineering	3
*ECON 205—Fundamentals of Economics (or substitute approved course)	3
*CORE[1]	3
Total	18
Junior Year[2]	
ENCE 300—Fundamentals of Engineering Materials	3
or ENMA 300—Materials Science and Engineering	
or ENES 230—Introduction to Materials and Their Applications	

or ENME 401[3]—The Structure and Properties of Engineering Materials	
ENME 342—Fluid Mechanics	3
or ENCE 330—Basic Fluid Mechanics	
ZOOL 211—Cell Biology and Physiology	4
[ENGR SCI: Technical Elective][4]	3
*CORE[1]	3
Total	16
ENEE 300—Principles of Electrical Engineering	3
ENEE 301—Electrical Engineering Laboratory	1
ENAG 454—Biological Process Engineering	4
[BIOL SCI: Technical Elective][4]	3
[ENGR SCI: Technical Elective][4]	3
*CORE[1]	3
Total	17
Senior Year	
ENAG 421—Power Systems	3
ENAG 422—Soil and Water Engineering	3
[BIOL SCI: Technical Elective][4]	3
ENGL 393—Technical Writing	3
*CORE[1]	6
Total	18
ENAG 481—Creative Design with CAD/CAM	3
ENAG 424—Functional and Environmental Design of Agricultural Structures	3
ENAG 485 Capstone Design	3
[BIOL SCI or ENGR SCI: Technical Elective][4]	3
*CORE[1]	3
Total	15
Total	**135**

*Satisfies General Education Requirements

[1]Students must consult with an advisor on selection of appropriate courses for their particular area of study.

[2]No 300 level and above courses may be attempted without special permission until fifty-six credits have been earned.

[3]ENME 310 must be taken as a technical elective prerequisite or corequisite with ENME 401.

[4]Technical electives, related to field of concentration, must be selected from a departmentally approved list. Nine credits must be 300 level and above. An elective such as computer-aided design (e.g., ENAG 489B) provides a strong base for the capstone design project.

Admission/Advising

All Agricultural Engineering majors must meet admission, progress and retention standards of the College of Engineering, but may enroll through either the College of Agriculture or Engineering.

Advising is mandatory; call 405-1198 to schedule an appointment.

Contact Departmental academic advisors to arrange teaching or research internships.

Financial Assistance

The department offers three scholarships specifically for Agricultural Engineering majors. Cooperative education (work study) programs are available through the College of Engineering. Part-time employment is available in the department and in USDA laboratories located near campus.

Honors and Awards

Outstanding junior and senior students are recognized each year for scholastic achievement and for their contribution to the department, college and university. Top students are selected for Alpha Epsilon, the Honor Society of Agricultural Engineering.

Student Organization

Join the student branch of the American Society of Agricultural Engineers. Academic advisors will tell you how to become a participant.

Course Code: ENAG

AGRICULTURAL SCIENCES, GENERAL (AGRI)

College of Agriculture

0102 Shriver Laboratory, 405-1179

Coordinator: L.P. Grant

Agriculture is a complex scientific field, encompassing all other scientific and professional fields. However, majoring in Agricultural Sciences does not require an agricultural background. Students in this major have backgrounds as varied as is the field itself. The Agricultural Sciences program is designed for students who are interested in a broad education in the field of agriculture. It is ideal for students who would like to survey agriculture before specializing, and for those who prefer to design their own specialized programs, such as International Agriculture or Agricultural Journalism. To supplement their classroom work, students in this major are encouraged to obtain summer positions that will provide technical laboratory or field experience in their chosen area. Advising is mandatory.

Requirements

	Semester Credit Hours
CORE Program Requirements*	40
BIOL 105—General Biology I	4
BIOL 106—General Biology II	4
CHEM 103—General Chemistry I	4
CHEM 104—Fundamentals of Organic and Biochemistry OR (CHEM 113 General Chemistry II and CHEM 233 Organic CHEM I)	4-8
MATH 110 or higher (115 recommended)	3
ENAG 100—Basic Agricultural Engineering Technology	3
ENAG 200—Introduction to Farm Mechanics	2
AGRO 101—Introductory Crop Science	4
AGRO 302—General Soils	4
ANSC 101—Principles of Animal Science	3
ANSC 315—Applied Animal Nutrition	3
ANSC or AGRO**	3
AREC 250—Elements of Agricultural and Resource Economics	3
AREC—**	3
BOTN 221—Diseases of Plants OR	
ANSC 412—Introduction to Diseases of Animals	4
ENTM—**Insect Pest Type Course	3
HORT—**	3
SOCY 305—Scarcity and Modern Society	3
Community Development Related, Non-agricultural Life Science, Biometrics, Computer, or Accounting	6
Electives (eighteen credit hours 300 or above)	20-29

*Includes eleven required credits listed below.

**Student may select any course(s) having required hours in the department indicated.

Course Code: AGRI

AGRICULTURAL AND EXTENSION EDUCATION (AEED)

College of Agriculture

0220 Symons Hall, 405-2333

This program has been closed. New students are not being admitted to the program. Current students should contact the college for advising.

A degree in agricultural and extension education may lead to career opportunities in educational and developmental programs, public service, business and industry, communications, research, or college teaching.

The program prepares individuals to teach agriculture at the secondary or postsecondary levels. It also prepares individuals to enter community development and other agriculturally related careers which emphasize working with people. Students preparing to become teachers of agriculture, including horticulture, agribusiness and other agriculturally related subjects, should have had appropriate experience with the kind of

agriculture they plan to teach or should arrange to secure that experience during summers while in college. Advising is mandatory.

Students in the agricultural education curriculum are expected to participate in the Collegiate FFA Chapter for developing skills necessary for advising FFA groups. Students must apply for admission to the teacher education program in agricultural education. Contact the Teacher Education Coordinator in AEED for application forms and procedures.

Agricultural and Extension Education Program Requirements

	Semester Credit Hours
CORE Program Requirements	40
AGRO 100—Crops Laboratory	
AGRO 102—Crop Production or	
AGRO 406—Forage Crop Production (3)	2
AGRO 302—General Soils	4
ANSC 101—Principles of Animal Science	3
ANSC 203—Feeds and Feeding	3
AREC 306—Farm Management OR	
AREC 407—Financial Analysis of Farm Business	3
BIOL 105, 106—Principles of Biology I, II	4,4
BOTN 221—Diseases of Plants	4
CHEM 103, 104—General Chemistry I, Fundamentals of Organic and Biochemistry	4,4
EDHD 300—Human Development and Learning	6
EDPA 301—Foundations of Education	3
ENAG 100—Basic Agricultural Engineering Technology	3
ENAG 200—Introduction to Farm Mechanics	2
ENAG 305—Farm Mechanics	2
ENTM 252—Agricultural Insect Pests	3
HORT 201—Environmental Factors and Horticultural Crop Production	4
HORT 202—Management of Horticultural Crop Production	4
MATH 110—Introduction Mathematics I	3
AEED 302—Introduction to Agricultural Education	2
EDIT 450—Training Aids Development	3
AEED 305—Teaching Young and Adult Farmer Groups	1
AEED 311—Teaching Secondary Vocational Agriculture	3
AEED 313—Student Teaching	5
AEED 315—Student Teaching	4
AEED 398—Seminar in Agricultural Education	1
AEED 464—Rural Life in Modern Society	3
AEED 489C—Field Experience: Teaching Agriculture	1
SPCH 107—Technical Speech Communication	3
Electives	6

Course Code: AEED

AGRICULTURAL AND RESOURCE ECONOMICS (AREC)

College of Agriculture

2200 Symons Hall, 405-1293

Professor and Chair: Just
Professors: Bender (Emeritus), Bockstael, Brown, Cain, Chambers, Foster, Gardner, Hueth, Lopez, McConnell, Moore, Poffenberger (Emeritus), Stevens (Emeritus), Strand, Tuthill (Emeritus), Wysong
Associate Professors: Hardie, Leathers, Lichtenburg
Assistant Professors: Horowitz, Whittington

The curriculum combines education in business and economic aspects of agricultural production, marketing and natural resource use with the biological and physical sciences. Depending on the option selected, graduates of the curriculum have appropriate background for management positions in the private sector, for positions in local, state, or federal agencies; for service in foreign agricultural trade and development; for research; for graduate school; or for farm management.

Advising

Advising is mandatory. Appointments may be made in Room 2200 Symons Hall, 405-1291.

Awards

Scholarships honoring Arthur and Pauline Seidenspinner and Ray Murray are available. Applicants must complete the Financial Aid Form of the College Scholarship Service, available at the University Office of Student Financial Aid, 2130 Mitchell Building.

Requirements for Major

Changes in major requirements are under review. Students should check with a departmental advisor for updated information.

	Semester Credit Hours
Major Core Courses	
AREC 250—Agricultural and Resource Economics	3
ECON 201—Macroeconomic Principles	3
ECON 203—Microeconomic Principles	3
ECON 306/406—Intermediate Microeconomic Theory	3
MATH 115—Precalculus	3
STAT 100 or MATH 111—Intro. Probability	3
MATH 220—Elementary Calculus	3
CMSC 103—Computer Applications or higher CMSC	3
Agribusiness Option	
AREC 306—Farm Management	3
AREC 407—Agricultural Finance	3
AREC 414—Agribusiness Management	3
AREC 427—Agricultural Marketing	3
BMGT 220—Accounting I	3
BMGT 221—Accounting II	3
BMGT 230—Business Statistics or other statistics	3
BMGT 340—Business Finance	3
BMGT 350—Marketing Principles	3
BMGT 364—Management and Organization Theory	3
BMGT 380—Business Law	3
Technical Agriculture*	6
Agricultural Economics Option	
AREC 306—Farm Management	3
AREC 404—Agricultural Prices	3
AREC 427—Agricultural Marketing	3
AREC 433—Food and Agricultural Policy	3
ECON 305—Macroeconomic Theory	3
Statistics	3
Technical Electives*	18
Resource Economics Option	
AREC 240—Environmental and Human Ecology	3
AREC 404—Agricultural Prices	3
AREC 432—Introduction to Natural Resources Policy	3
AREC 453—Natural Resources and Public Policy	3
ECON 381—Environmental Economics	3
ECON 305 or 405—Macroeconomic Theory	3
Statistics	3
Technical Electives*	15
International Agriculture Option	
AREC 306—Farm Management	3
AREC 365—World Food Hunger	3
AREC 404—Agricultural Prices	3
AREC 433—Food and Agricultural Policy	3
AREC 445—Agricultural Development	3
ECON 305 or 405—Macroeconomic Theory	3
ECON 440—International Economics	3
Statistics	3
Technical Electives*	12

*Chosen with approval of advisor.

Course Code: AREC

AGRONOMY (AGRO)

College of Agriculture

1109 H.J. Patterson Hall, 405-1306

Professor and Acting Chair: Weismiller
Professors: Angle, Aycock, Dernoeden, Fanning, Kenworthy, McIntosh, McKee, Mulchi, Sammons†, Weil, Weismiller
Associate Professors: Glenn, Hill, James, Rabenhorst, Ritter, Turner, Vough
Assistant Professors: Carroll, Slaughter
Adjunct Professors: Lee, Thomas
Adjunct Associate Professors: Daughtry, Meisinger, Van Berkum
Emeriti: Axley, Bandel, Clark, Decker, Hoyert, Kuhn, Miller

†Distinguished Scholar-Teacher

The Major

Agronomy instruction combines the principles of basic sciences with a thorough understanding of plants and soils. This amalgamation of basic and applied sciences provides the opportunity for careers involved in conserving soil and water resources, improving environmental quality, increasing crop production to meet the global need for food, and beautifying and conserving the urban landscape using turfgrass.

The agronomy curricula are flexible and allow the student either to concentrate on basic science courses that are needed for graduate work or to select courses that prepare for employment at the bachelor's degree level. Graduates with a bachelor's degree are employed by private corporations as environmental soil scientists, golf course managers, agribusiness company representatives, or by county, state, or federal government as agronomists or extension agents. Students completing graduate programs are prepared for research, teaching, and management positions with industry, international agencies, or federal and state government. Advising is mandatory.

Requirements for Major

Changes in major requirements are under review. Students should check with a departmental advisor for updated information.

Agronomy Curricula. CORE Program Requirements (40 semester hours); Math and science requirements (9 hours) are satisfied by departmental requirements.

Department Requirements
(31 semester hours)

	Semester Credit Hours
AGRO 101—Introductory Crop Science	4
AGRO 302—Fundamentals of Soil Science	4
AGRO 398—Senior Seminar	1
BIOL 105—Principles of Biology I	4
CHEM 103—General Chemistry I	4
CHEM 104—Fundamentals of Organic and Biochemistry*	4
MATH 110—Introduction to Mathematics OR MATH 115—Pre-calculus (consult advisor)	3
PHYS 117—Introduction to Physics **OR** PHYS 121—Fundamentals of Physics I	4
SPCH 100—Basic Principles of Speech Communication OR SPCH 107—Technical Speech Communication	3

*Students intending to take additional chemistry or attend graduate school should substitute CHEM 113, followed by CHEM 233 and CHEM 243.

Crop Science Curriculum

University and Department Requirements	61
AGRO—Advanced Crops Courses (Consult Advisor)	8
AGRO—Advanced Soils Courses (Consult Advisor)	6
BIOL 106—General Biology	4
BOTN 441—Plant Physiology	4
One of the following:	3-4
BOTN 212—Plant Taxonomy (4)	
BOTN 414—Plant Genetics (3)	
BOTN 416—Plant Structure (4)	
Electives	34-35

Soil Science Curriculum

University and Department Requirements	61
AGRO—Advanced Soils Courses (Consult Advisor)	3
AGRO—Advanced Crops Courses (Consult Advisor)	6
AGRO 414—Soil Morphology, Genesis and Classification	4
AGRO 417—Soil Physics	3
AGRO 421—Soil Chemistry	4
GEOL 100—Physical Geology	3
AGRO 422—Soil Microbiology	4
Electives	33

Turf and Urban Agronomy Curriculum

University and Department Requirements	61
AGRO 411—Soil Fertility Principles	3
AGRO 310—Introduction to Turf Management	3
AGRO 453—Weed Science	3
BOTN 441—Plant Physiology	4
BOTN 425—Diseases of Ornamentals and Turf*	2
ENTM 453—Insects of Ornamentals and Turf*	3
HORT 453—Woody Plant Materials	3
AGRO 415—Soil Survey and Land Use	3
Electives (HORT 160 and RECR 495 suggested)	35

*BOTN 221, ENTM 204, and BOTN 212 serve as prerequisites

Conservation of Soil, Water and Environment Curriculum

University and Department Requirements	61
AGRO 417—Soil Physics OR AGRO 421—Soil Chemistry	3-4
AGRO 413—Soil and Water Conservation	3
AGRO 411—Soil Fertility Principles	3
AGRO 414—Soil Morphology, Genesis and Classification	4
AGRO 415—Soil Survey and Land Use	3
AGRO 423—Soil-Water Pollution	3
AGRO—Advanced Crops Courses (Consult Advisor)	5-6
Select one of the following courses:	3
BOTN 211—Ecology and Mankind	
GEOG 345—Climatology	
AREC 432—Introduction to Natural Resources Policy	
Electives	31-32

Course Code: AGRO

AMERICAN STUDIES (AMST)

College of Arts and Humanities

2101 South Campus Surge Building, 405-1354

Associate Professor and Chair: Kelly
Professors: Caughey, Diner
Associate Professors: Lounsbury, Mintz, Paoletti, Parks
Assistant Professor: Sies

The Major

American Studies offers an interdisciplinary approach to the study of American culture and society, past and present, with special attention to the ways in which Americans, in different historical or social contexts, make sense of their experience. Emphasizing analysis and synthesis of diverse cultural products, the major provides valuable preparation for graduate training in the professions as well as business, government and museum work. Undergraduate majors, with the help of faculty advisors, design a program that includes courses offered by the American Studies faculty, and sequences of courses in the disciplines usually associated with American Studies (i.e., history, literature, sociology, anthropology, political science, and others), or pertinent courses grouped thematically (e.g., Afro-American studies, women's studies, ethnic studies).

Requirements for Major

The major requires forty-five hours, at least twenty-four of which must be at the 300-400 level. Of those forty-five hours, twenty-one must be in AMST courses, with the remaining twenty-four in two twelve-hour core areas outside the regular AMST departmental offerings. No grade lower than a C may be applied toward the major.

Distribution of the 45 hours:

AMST Courses (21 hours required)

1. AMST 201/Introduction to American Studies (3): required of majors.
2. Three (3) or six (6) hours of additional lower level course work.
3. AMST 330/Critics of American Culture (3): required of majors.
4. Six (6) or nine (9) hours of upper level course work. No more than 6 hours of a repeatable number may be applied to the major. ***Students should take AMST 201 before taking any other AMST courses and will complete 330 before taking 400 level courses.
5. AMST 450/Seminar in American Studies (3): required of majors.

Core Areas Outside American Studies (24 hours required)
Majors choose two outside core areas of twelve hours each. At least one of the cores must be in a discipline traditionally associated with American Studies. The other core may be thematic. Upon entering the major, students develop a plan of study for the core areas in consultation with an advisor; this plan will be kept in the student's file. All cores must be approved by an advisor in writing.

Traditional Disciplinary Cores
History, Literature, Sociology/Anthropology, Art/Architectural History.

Interdisciplinary or Thematic Cores
Afro-American Studies, Women's Studies, Urban Studies, Popular Culture, Personality and Culture, Comparative Culture, Material Culture, Ethnic Studies, Business and Economic History, Folklore, Government and Politics, Education, Philosophy, Journalism.

Course Code: AMST

ANIMAL SCIENCES (ANSC)

College of Agriculture

1415A Animal Sciences Center, 405-1373

Department of Animal Sciences
Chair: Westhoff
Professors: Mather, Vijay, Westhoff, Erdman, Soares
Associate Professors: Barao, DeBarthe, Douglass, Hartsock, Majeskie, Peters, Russek-Cohen, Stricklin, Varner
Assistant Professors: Deuel
Associate Specialist: Curry
Emeriti: Flyger, Foster, King, Leffel, Mattick, Morris, Vandersall, Williams, Young

Department of Poultry Science
Rm. 3113 Animal Science Center, 405-5775

Chair: Heath (Acting)
Professors: Heath, Kuenzel, Ottinger, Thomas, Wabeck
Associate Professors: Doerr, Mench, Murphy
Adjunct Associate Professors: Hill, Rattner, Sporling, Woods

The Major

The curriculum in Animal Sciences offers a broad background in general education, basic sciences, and modern agricultural sciences, and the opportunity for students to emphasize that phase of animal agriculture in which they are specifically interested. The curriculum is intended to prepare students for entrance to veterinary schools and graduate schools and to prepare students for careers in animal agriculture including positions in management and technology associated with animal, dairy, or poultry production enterprises; positions with marketing and processing organizations; and positions in other allied fields such as biotechnology research, pharmaceutical, feed, and equipment firms.

Requirements for Major

Curriculum requirements in animal sciences can be completed through the Departments of Animal Sciences or Poultry Science.

Required of All Students

	Semester Credit Hours
CORE Program Requirements*	40
ANSC 101—Principles of Animal Science	3
ANSC 211—Animal Anatomy	4
ANSC 212—Animal Physiology	3
ANSC 215—Comparative Animal Nutrition	3
ANSC 4**—Senior Capstone	3
BIOL 105—Principles of Biology I	4
BIOL 106—Principles of Biology II	4
BIOL 222—Introductory Genetics	4
CHEM 103—General Chemistry I	4
CHEM 104—Fundamentals of Organic and Biochemistry	4
or	
CHEM 113 and CHEM 233 General Chemistry II and Organic Chemistry I	
Mathematics: MATH 115 or above	3
PHYS 121—Fundamentals of Physics	4
or	
ENAG 100—Basic Agricultural Engineering Techniques	3
ECON 201—Principles of Economics	3
MICB 200—General Microbology	4

*Includes sixteen required credits listed below

All students must complete 23 or 24 credits of additional course work listed under one of the following areas of specialization:

ANIMAL MANAGEMENT AND INDUSTRY
AVIAN BUSINESS
EQUINE STUDIES
LABORATORY ANIMAL MANAGEMENT
SCIENCES

Advising

Advising is mandatory. Each student will be assigned to a faculty advisor to assist in planning his or her academic program. For information or appointment: 1415A Animal Sciences Center, 405-1373.

Honors and Awards

American Society of Animal Sciences Scholastic Recognition and Department of Animal Sciences Scholastic Achievement Awards are presented each year at the College of Agriculture Student Awards Convocation. For eligibility criteria see ANSC Undergraduate Studies Office, 1415A Animal Sciences Center.

Student Organizations

ANSC majors are encouraged to participate in one or more of the following social/professional student organizations. The Block and Bridle Club, The University of Maryland Cavalry, and the Veterinary Science Club. For more information see ANSC Undergraduate Studies Office, 1415A Animal Sciences Center.

Course Code: ANSC

ANTHROPOLOGY (ANTH)

College of Behavioral and Social Sciences

1111 Woods Hall, 405-1423

Associate Professor and Chair: Whitehead
Professors: Agar, Chambers, Williams
Associate Professor: Jackson
Assistant Professor and Assistant Chair: Stuart
Assistant Professors: Seidel, Wali
Lecturers: Kedar, Nagle
Research Associates: Kaljee (CuSAG), Peterson (CuSAG)
Affiliate Faculty: Bolles (WMST), Gonzalez (CIDCM)†
Adjunct Faculty: Potter (National Park Service)

*Joint appointment with unit indicated
†Distinguished Scholar Teacher

The Major

Anthropology, the holistic study of humanity, seeks to understand humans as a whole—as social animals who are capable of symbolic communication through which they produce a rich cultural record—from the very beginning of time and all over the world. Anthropologists try to explain differences among humans—differences in their physical characteristics as well as in their attitudes, customary behavior, and artifacts. Since

children learn their culture from the preceding generation, who in turn learned it from the preceding generation, culture has grown and changed through time as the species has spread over the earth. Anthropology is not the history of kings and great women or men or of wars and treaties; it is the history and the science of the biological evolution of human species, and of the cultural evolution of human beings' knowledge and customary behavior.

Anthropology at UMCP offers rigorous training for many career options. A strong background in anthropology is a definite asset in preparing for a variety of academic and profession fields, ranging from the law and business, to comparative literature, philosophy and the fine arts. Whether one goes on to a Master's or a Ph.D., the anthropology BA prepares one for a wide range of non-academic employment, such as city and public health planning, development consulting, program evaluation, and public archaeology.

Academic Programs and Departmental Facilities

The Anthropology Department offers beginning and advanced coursework in the four principal subdivisions of the discipline: ethnology (also known as cultural anthropology), archaeology, biological anthropology, and linguistics. Within each area, the department offers some degree of specialization and provides a variety of opportunities for research and independent study. Laboratory courses are offered in biological anthropology, archaeology, and ethnographic methods. Field schools are offered in archaeology and ethnography. The interrelationship of all branches of anthropology is emphasized.

The undergraduate curriculum is closely tied to the department's Master in Applied Anthropology (MAA) program; accordingly, preparation for non-academic employment upon graduation is a primary educational goal of the Department's undergraduate coursework and internship and research components.

The Anthropology Department has a total of four laboratories located in Woods Hall, which are divided into teaching labs and research labs. The department's two archaeology labs, containing materials collected from field schools of the past several years, serve both teaching and research purposes. The other two laboratories are a teaching laboratory in biological anthropology and the Laboratory for Applied Ethnography and Community Action Research.

All students have access to a twenty-workstation IBM computer laboratory located at 1102 Woods Hall.

Cultural Systems Analysis Group (CuSAG), a research and program development arm of the department, is located in Woods Hall.

Requirements for Major

Changes in major requirements are under review. Students should check with a departmental advisor for updated information.

A student who declares a major in anthropology will be awarded a Bachelor of Arts degree upon fulfillment of the requirements of the degree program. The student must complete at least thirty hours of courses with the prefix ANTH with a grade of C or better in each course and eighteen hours of supportive courses. The courses are distributed as follows:

a. Eighteen hours of required courses that must include ANTH 101, 102, 397, 401, 451 (or 441), and 371 or 361 (461);
b. Twelve hours of elective courses in anthropology of which nine hours must be at the 300 level or above;
c. Eighteen hours of supporting courses (courses outside of anthropology offerings in fields that are complementary to the student's specific anthropological interests). Supporting courses are to be chosen by the student and approved by a faculty advisor. Quantitative methods course(s) beyond MATH 110 are strongly encouraged, as is foreign language course work. With the advisor's endorsement, up to six hours of anthropology courses may be counted as "supporting".

In addition to the above requirements, anthropology majors must meet the requirements of the College of Behavioral and Social Sciences, as well as the requirements of the University's general education program.

Advising

Undergraduate advising is coordinated by the Director for Undergraduate Studies, Dr. William Stuart, who serves as the Administrative Advisor for all undergraduate majors and minors. All majors are required to meet with Dr. Stuart at least once per term, at the time of pre-registration. In addition, the Anthropology Department encourages students to select an academic advisor who will work closely with the student to tailor the program to fit the student's particular interests and needs. All Anthropology faculty members serve as academic advisors (and should be contacted individually). Each major is expected to select an academic advisor and to consult with him/her on a regular basis. For additional information, students should contact the Director of Undergraduate Studies, Dr. William Taft Stuart, 0100A Woods Hall, 405-1435.

Honors

The Anthropology Department also offers an Honors Program that provides the student an opportunity to pursue in-depth study of his or her interests. Acceptance is contingent upon a 3.5 GPA in anthropology courses and a 3.0 overall average. Members of this program are encouraged to take as many departmental honors courses (either as HONR or as "H" sections of ANTH courses) as possible. The Honors Citation is awarded upon completion and review of a thesis (usually based upon at least one term of research under the direction of an Anthropology faculty member) to be done within the field of anthropology. Details and applications are available in the Anthropology Office, or contact your advisor for further information.

Student Organizations

Anthropology Student Association (ASA). An anthropology student association meets regularly to plan student events and to help coordinate various student and faculty activities. Meeting times are posted outside 0133 Woods Hall.

The department and the ASA jointly sponsor a public lecture series.

Course Code: ANTH

APPLIED MATHEMATICS PROGRAM

College of Computer, Mathematical, and Physical Sciences

1104 Mathematics, 405-5062

Director: Cooper
Faculty: Over 100 members from 13 units.

The Applied Mathematics Program is a graduate program in which the students combine studies in mathematics and application areas. All MAPL courses carry credit in mathematics. An undergraduate program emphasizing applied mathematics is available to majors in mathematics. Appropriate courses carry the MATH and STAT prefix, as well as the MAPL prefix.

Course Code: MAPL

ART (ARTT)

College of Arts and Humanities

1211-E Art/Sociology Building, 405-1442

Associate Professor and Chair: Craig
Assistant to the Chair: Jacobs
Undergraduate Director: Ruppert
Graduate Director: Humphrey
Professors: DeMonte, Driskell, Lapinski, Pogue, Fabiano
Associate Professors: Craig, Forbes, Gelman, Kehoe, Klank, Niese, Lozner, Richardson, Thorpe
Assistant Professors: Humphrey, McCarty, Ruppert, Sham
Emerita: Truitt†
†Distinguished Scholar-Teacher
Undergraduate Secretary: Germash Teferra

The Major

An Art Department is a place where ideas become art objects. To accomplish this transformation, the art student must articulate and refine

the concept, and then apply acquired knowledge and skills to the materials that comprise the object.

Human beings have made and embellished objects for thousands of years. In the Twentieth Century, Art Department faculties and students embody this fundamental human inclination and attempt to understand, convey, and celebrate it.

Requirements for Major

Along with college and campus-wide general education requirements, the student may choose one of two Major Program Options; Program "A" or Program "B."

Program "A" Requirements: (42 Major credits, 12 Supporting Area credits)

ARTT 150 Introduction to Art Theory (3)
ARTT 100 Elements of Two Dimensional Space and Form (3)
ARTT 110 Elements of Drawing (3)
ARTT 200 Elements of Three Dimensional Space and Form (3)
ARTT 210 Elements of Drawing II (3)
ARTT 320 Elements of Painting (3)
ARTT 33x Elements of Sculpture (One course from the 330 series) (3)
ARTT 34x Elements of Printmaking (One course from the 340 series) (3)
ARTT 418 Advanced Drawing (3)
ARTT 460 Seminar in Art Theory (ARTT 461 may be taken as an alternate) (3)
ARTT xxx 300/400 elective (3)

ARTH 200 History of Art (Survey I) (3)
ARTH 201 History of Art (Survey II) (3)
ARTH xxx 300/400 elective (3)

Supporting Area: Four related (not ARTT) courses approved by the advisor. Six credits must be taken in one department and must be at the 300/400 level. (12)

Program "B" requirements: (36 Major credits, 12 Supporting Area)
ARTT 150 Introduction to Art Theory (3)
ARTT 100 Elements of Two Dimensional Space and Form (3)
ARTT 110 Elements of Drawing I (3)
ARTT 200 Elements of Three Dimensional Space and Form (3)
ARTT 210 Elements of Drawing II (3)
ARTT 320 Elements of Painting (3)
ARTT 33x Elements of Sculpture (One course from the 330 series) (3)
ARTT 34x Elements of Printmaking (One course from the 340 series) (3)
ARTT 418 Advanced Drawing (3)
ARTT 460 Seminar in Art Theory (ARTT 461 may be taken as an alternate) (3)
ARTT xxx 300/400 level elective (3)
ARTT xxx 300/400 level elective (3)

Supporting Area:
ARTH 200 History of Art (Survey I) (3)
ARTH 201 History of Art (Survey II) (3)
ART xxx 300/400 level ARTH or Art Theory elective (3)
ART xxx 300/400 level ARTH or Art Theory elective (3)

No course with a grade less than C may be used to satisfy Major or Supporting Area requirements.

Advising

We strongly recommend that the student see his or her advisor each semester. The department has four advisors. Students should contact the Undergraduate Secretary, Germash Teferra, in the main office for specifics.

Fieldwork and Internship Opportunities

Students in the past have worked in a variety of internship settings. These have included assisting professionals complete public commissions, commercial or cooperative gallery and exhibition duties, and working in professional artists' workshops in the Baltimore and Washington metropolitan areas. Additional information is available from the undergraduate secretary in the Art Department office.

Financial Assistance

The Art Department administers eight Creative and Performing Arts Scholarships (CAPA's) that are available to freshman and entering transfer students for the Fall semesters. This is a merit based scholarship that is awarded on a one-year basis. Additional information is available in the main office of the department.

Honors and Awards

Our Honors Program is currently being developed. Students interested in further information are encouraged to contact Professor Richard Klank at 405-1463.

Student Art Exhibit

Graduating Art Majors have an exhibition in the West Gallery in December and in May of each academic year. The James P. Wharton Prize is awarded to the outstanding student in these exhibitions. The West Gallery (1309 Art Sociology Building) is an exhibition space devoted primarily to showing students' art work, and is administered by undergraduate art majors.

Lecture Program

The Art Department has a lecture program in which artists and critics are brought to the campus to explore ideas in contemporary art. A strong component of this program is devoted to the art ideas of women and minorities.

Course Code: ARTT

ART HISTORY AND ARCHEOLOGY (ARTH)

College of Arts and Humanities

1211B Art/Sociology Building, 405-1479

Professor and Chair: Farquhar
Professors: Denny, Eyo, Hargrove, Miller, Rearick, Wheelock
Associate Professors: Kelly, Kuo, Pressly, Spiro, Venit, Withers
Assistant Professors: Colantuono, Promey, Sandler

The Major

A major in the department of Art History and Archeology leads to a Bachelor of Arts degree through the study and scholarly interpretation of existing works of art, from the prehistoric era to the present.

The goal of the Art History and Archeology Department is to develop the student's aesthetic sensitivity and understanding of art as well as to impart a knowledge of the works, the artists, and their place in history. In addition to courses in European art history and archaeology, the curriculum includes courses in African, American, Black American, Chinese, Japanese, and Pre-Columbian art history and archaeology, all taught by specialists in the fields. A 65,000 volume art library and the University's art gallery are located in the art building.

The Art History faculty encourages the development of language skills and writing. The program provides a good foundation for graduate study, for work in museums and galleries, or for teaching, or for any profession in which clear thinking and writing are required.

The requirements for a major in Art History and Archaeology are as follows: three ARTH courses (9 credits) at the 200 level; seven ARTH courses (21 credits) at the 300-400 level; either ARTT 100 or ARTT 110; a supporting area comprised of four courses (12 credits) in coherently related subject matter outside the Art History Department, of which two courses must be at the 300-400 level and in a single department. Thus, there is required a total of 45 credits (30 in ARTH courses, 3 in an ARTT course, and 12 in the supporting area).

No major credit can be received for ARTH 100, 355, 380, 381 or 382. No course with a grade less than C may be used to satisfy major or supporting area requirements. Students are encouraged to explore the diversity of geographical and chronological areas offered in the Art History program.

Honors Program: Qualified majors may participate in the department's honors program, which requires the completion of 6 credits of ARTH 378 and 6 credits of ARTH 379. Consult a departmental advisor for details.

Awards: The Department of Art History and Archeology offers three undergraduate awards each year: the J.K. Reed Fellowship Award to an upper-level major and the George Levitine and Frank DiFederico Book Awards to seniors nearing graduation.

Course Code: ARTH

ASTRONOMY (ASTR)

College of Computer, Mathematical and Physical Sciences

2105 Space Sciences Bldg., 405-3001

Acting Chair: A'Hearn
Associate Chair: Trasco
Professors: A'Hearn, Bell, Blitz, Earl, Harrington, Kundu, Rose, Wentzel, Wilson
Associate Professors: Matthews, Vogel
Assistant Professors: Mundy, Stone
Adjunct/Part-Time Professors: Hauser, Holt, Trimble
Professors Emeriti: Erickson, Kerr
Instructors: Deming, Theison
Associate Research Scientists: Goodrich, Gopalswamy, White
Assistant Research Scientists: Arnaud, deGeus, Kim, Schaefer

The Major

The Astronomy Program offers courses leading to a Bachelor of Science in Astronomy as well as a series of courses of general interest to non-majors. Astronomy majors are given a strong undergraduate preparation in astronomy, mathematics and physics. The degree program is designed to prepare students for positions in government and industry laboratories or for graduate work in astronomy or related fields. A degree in astronomy has also proven valuable as preparation for non-astronomical careers.

Requirements for Major

Astronomy majors are required to take a two semester introductory astrophysics course sequence: ASTR 200, 350 as well as a two semester sequence on observational astronomy ASTR 310 (Optical Astronomy) and ASTR 410 (Radio Astronomy). Two additional upper level astronomy courses are also required.

Students majoring in astronomy are also required to obtain a good background in physics and in mathematics. The normal required sequence is PHYS 171, 272, 273 and the associated labs PHYS 275, 276 and 375. With the permission of the advisor, PHYS 161, 262, 263 plus 375 can be substituted for this sequence. Astronomy majors are also required to take a series of supporting courses in mathematics. These are MATH 140, 141, 240 and 241. In addition, MATH 246 is strongly recommended.

The program requires that a grade of C or better be obtained in all courses. Any student who wishes to be recommended for graduate work in astronomy must maintain a B average. He or she should also consider including several additional advanced courses beyond the minimum required, to be selected from astronomy, physics and mathematics.

Detailed information on typical programs and alternatives to the standard program can be found in the pamphlet entitled "Department Requirements for a Bachelor of Science Degree in Astronomy" which is available from the Astronomy department office.

Facilities

The Department of Astronomy has joined with two other universities in upgrading and operating an mm wavelength array located at Hat Creek in California. Observations can be made remotely from the College Park campus. Several undergraduate students have been involved in projects associated with this array. The Department also operates a small observatory on campus. This is equipped with a CCD camera which is used in the observing class. Results obtained at the observatory can be analyzed using the department's computer network.

Courses for Non-Science Majors

There are a variety of astronomy courses offered for those who are interested in learning about the subject but do not wish to major in it. These courses do not require any background in mathematics or physics and are geared especially to the non-science major. ASTR 101 is a general survey course including laboratory work. It briefly covers most of the major topics in astronomy. Several 300-level courses are offered primarily for non-science students who want to learn about a particular field in depth, such as the Solar System, Galaxies and the Universe, and Life in the Universe. Non-science majors should not normally take ASTR 200 or ASTR 350.

Honors

The Honors Program offers students of exceptional ability and interest in astronomy opportunities for part-time research participation which may develop into full-time summer projects. An honors seminar is offered for advanced students; credit may be given for independent work or study; and certain graduate courses are open for credit toward the bachelor's degree. Students are accepted into the Honors Program by the Department's Honors Committee on the basis of recommendations from their advisors and other faculty members. Most honors candidates submit a written report on their research project, which together with an oral comprehensive examination in the senior year, concludes the program which may lead to graduation "with honors (or high honors) in astronomy."

Further information about advising and the honors program can be obtained by calling the Department of Astronomy office at (301) 405-3001.

Course Code: ASTR

BIOLOGICAL SCIENCES PROGRAM

College of Life Sciences

1213 Symons, 405-6892

Director: Olek

The Major

The Biological Sciences curriculum is an interdepartmental program sponsored by the Departments of Botany, Entomology, Microbiology, and Zoology. The program is designed to challenge talented students as they explore and develop their interests by completing a common two year sequence of courses. Students may then elect to specialize in one of eight subjects areas (called "Specialization Areas") or to construct their own program under the Biological Sciences Individualized Studies (BIVS) or general studies (BGEN) options. The defined Specialization Areas include Plant Sciences (PLNT), Entomology (ENTM), Microbiology (MICB), Zoology (ZOOL), Cell and Molecular Biology and Genetics (CMBG), Ecology, Evolutionary Biology and Behavior (EEBB), Physiology and Neurobiology (PHNB), and Marine Biology (MARB). Students selecting one of these areas complete 21 - 24 credits of advanced course work in the junior and senior years. A complete list of Specialization Area requirements is available from the Biological Sciences Program Office (301-405-6892).

The undergraduate curriculum in Biological Sciences at College Park emphasizes active learning through student participation in a variety of quality classroom and laboratory experiences. The well-equipped teaching laboratories incorporate modern research technologies to provide students with the very best learning environment. The program requires supporting course work in chemistry, mathematics and physics, but still allows time for exploring other academic disciplines and securing a quality general education.

Each of the participating departments offers research opportunities that may be completed either in a faculty member's research laboratory or field site or at one of the many nearby research facilities. The National Institutes of Health, Patuxent Wildlife Refuge, the National Zoo, and the Chesapeake Bay Laboratory are just a few of the many sites utilized by UMCP students.

Many of our graduates pursue advanced degrees in masters or doctoral programs or by entering medical, dental, or other professional schools. Some elect to seek employment as skilled technical personnel in government or industry research laboratories. Students emphasizing environmental biology find careers in fish and wildlife programs, zoos and museums. Other recent graduates are now science writers, sales representatives for the biotechnology industry, and lawyers specializing in environmental and biotechnology related issues.

Requirements for Major

	Semester Credit Hours
CORE Program Requirements	30
College of Life Sciences Core Requirements	38-40
One of the following four courses in organismal diversity:	4
BOTN 207—Plant Diversity	
ENTM 205—Principles of Entomology	
MICB 200—General Microbiology	
ZOOL 210—Animal Diversity	
BIOL 222—Principles of Genetics	4
or MICB 380—Bacterial Genetics for student selecting Microbiology as their specialization area.	
Advanced Program	21-24
Electives	16-19

A grade of C or better is required for BIOL 105, 106, the diversity course, and BIOL 222 or MICB 380.

A C average is required for the Biological Sciences supporting courses (math, chemistry, and physics).

Advanced Program

Students must complete an approved curriculum that includes one course in statistics or biochemistry (BCHM 461, BIOM 301, BIOM 401, STAT 400, STAT 464, or PSYC 200) and 18-21 credits of biological sciences selected from the specialization area approved list with at least 14 credits in biological sciences courses numbered 300 or above including two laboratory courses. No 386 credits (experiential learning) will be accepted. A grade of C or better is required in all courses within the Advanced Program. Courses currently approved for the advanced program include:
BOTN all courses except BOTN 100, 101, 103, 200, 202, 207, 211 and 414.
BCHM 461, 462, 464, 465.
CHEM 287, 487.
ENTM all courses except ENTM 100, 111, 205, 252, and 303.
MICB all courses except MICB 100, 200, 322
ZOOL all courses except ZOOL 181, 201, 202, 207, 210, 301, 323, 346, and 381. See advisor for applicability of ZOOL 328 courses.

Research experience in the various areas of biology is possible under this plan by special arrangement with faculty research advisors and prior approval of the Director. Not more than 3 hours of special problems or research can be taken as part of the advanced program requirement. All advanced program curricula are subject to the approval of the General Biological Sciences Program Committee.

In compliance with the University Studies Program, the following courses cannot be used by G.B.S. majors to fulfill USP requirements: EDMS 451, ZOOL 346, 381, 301, 323, BCHM 361, CHEM 374.

Advising

Director: Olek (1213 Symons, 405-6892); Coordinating Advisors: Armstrong (2309 Symons, 405-3925), Barnett (3214 H.J. Patterson, 405-1597), Presson (2227 Zoology-Psychology, 405-6904), Smith (2107 Microbiology, 405-2107).

Honors

The Honors Programs within participating departments offer exceptional opportunities for talented and promising students, emphasizing the scholarly approach to independent study. Information about these honors programs may be obtained from the Director.

Student Honor Societies

Phi Sigma Biological Honor Society. Contact the Biology Program Office (301-405-6892). Sigma Alpha Omicron Microbiological Honor Society. Contact the Department of Microbiology (301-405-5435).

Course Code: BIOL

BOTANY (BOTN)

College of Life Sciences

H.J. Patterson Hall, 405-1597

Professor and Chair: Teramura
Distinguished Professor: Diener
Professors: Bean, Gantt, Kantzes, Krusberg, Kung, Lockard, Patterson, Reveal, Sisler, Steiner, Sze
Associate Professors: Barnett, Bottino, Cooke, Forseth, Grybauskas, Hutcheson, Motta, Racusen, Wolniak
Assistant Professors: Dudash, Fenster, Straney, Watson
Lecturer: Berg
Instructors: Browning, Koines
Emeriti: Brown, Sisler, Sorokin

This specialization area is designed with a diverse range of career possibilities for students in botany or plant biology. The department offers instruction in the fields of physiology, pathology, ecology, taxonomy, anatomy-morphology, genetics, mycology, nematology, virology, and general botany.

Requirements for Specialization

See Biological Sciences in this catalog and Botany advisor for specific program requirements.

Advising

Academic advising is mandatory. Contact the Botany Coordinating Advisor, Dr. Neal Barnett, 3214 H.J. Patterson, 405-1597.

Honors

The Botany Department offers a special program for exceptionally talented and promising students through the Honors Program, which emphasizes the scholarly approach to independent study. Information concerning this program may be obtained from the academic advisors.

Course Code: BOTN

BUSINESS AND MANAGEMENT, GENERAL

For information, consult the College of Business and Management entry.

CHEMICAL ENGINEERING (ENCH)

College of Engineering

2113 Chemical and Nuclear Engineering Bldg., 405-1938

Acting Chair: Calabrese
Undergraduate Director: Weigand
Professors: Gentry, McAvoy, Regan, Sengers*, Smith, Weigand
Associate Professors: Calabrese, Choi, Gasner, Ranade**, Zafiriou
Assistant Professors: Bentley, Mavrovouniotis, Wang
Emeritus: Beckmann
*Member of Institute for Physical Sciences and Technology
**Adjunct

The Major

The Chemical Engineering Department offers a general program in chemical engineering. In addition, study programs in the specialty areas of applied polymer science, biochemical engineering, and process engineering are available. The latter programs are interdisciplinary with other departments at the university. The departmental programs prepare an undergraduate for graduate study or immediate industrial employment following the baccalaureate degree.

Because of this wide range of ultimate applications, the chemical engineer finds interesting and diverse career opportunities in such varied fields as chemical (inorganic and organic), food processing and manufacturing, metallurgical, polymer, energy conversion, petroleum (refining, production, or petrochemical), and pharmaceutical industries. Additional opportunities are presented by the research and development activities of many public and private research institutes and allied agencies.

Requirements for Major

The curriculum is composed of: (1) the required CORE (general education) requirements of College Park; (2) a core of mathematics, physics, chemistry, and engineering sciences required of all engineering students; (3) the required core of 34 credits of ENCH courses which includes ENCH 215, 250, 300, 333, 422, 424, 426, 437, 440, 442, 444, and 446; (4) nine credits of ENCH electives. A sample program follows:

Freshman Year: The freshman year is the same for all Engineering departments. Please consult the College of Engineering entry.

	Semester I	Semester II
Sophomore Year		
MATH 241—Calculus III	4	
MATH 246—Differential Equations for Scientists and Engineers		3
PHYS 262, 263—General Physics	4	4
ENES 230—Intro. to Materials and Their Applications		3
CHEM 233—Organic Chemistry I	4	
CHEM 243—Organic Chemistry II		4
ENCH 215—Chem. Engr. Analysis	3	
ENCH 250—Computer Methods in Chem. Engr.		3
CORE Program Requirements	3	
Total	18	17
Junior Year		
ENCH 300—Chemical Process Thermodynamics	3	
ENCH 440—Chemical Engineering Kinetics		3
ENCH 442—Chemical Engr. Systems Analysis		3
CHEM 481, 482—Physical Chemistry I, II	3	3
CHEM 483—Physical Chemistry Laboratory I	2	
ENCH 422—Transport Processes I	3	
ENCH 424—Transport Processes II		3
ENEE 300—Principles of Electrical Engineering (Recommended)	3	
CORE Program Requirements	3	6
Total	17	18
Senior Year		
ENCH 437—Chemical Engineering Lab	3	
ENCH 444—Process Engr. Economics and Design I	3	
ENCH 446—Process Engr. Economics and Design II		3
ENCH 333—Seminar		1
ENCH 426—Transport Processes III		
Technical Electives**	3	6
CORE Program Requirements	3	6
Total	15	16

Minimum Degree Credits: 120 credits and fulfillment of all department, college, and university requirements.
*Qualified students may elect to take CHEM 105 and 115 (4 sem. hrs. each) instead of CHEM 103 and 113.
**Students must consult with an advisor on selection of appropriate courses for their particular course of study.

Technical Electives Guidelines

Nine credits of technical electives are required. It is recommended that they be taken during the senior year.

Additional guidelines are as follows:

Technical electives will normally be chosen from the list given. Upon the approval of your advisor and written permission of the department, a limited amount of substitution may be permitted. Substitutes, including ENCH 468 Research (1-3 cr.), must fit into an overall plan of study emphasis and ensure that the plan fulfills accreditation design requirements.

Technical Electives:

Biochemical Engineering
ENCH 482—Biochemical Engineering (3)
ENCH 485—Biochemical Engineering Laboratory (3), recommended only if ENCH 482 is taken.

Polymers
ENCH 490—Introduction to Polymer Science (3)
ENCH 492—Applied Physical Chemistry of Polymers (3)
ENCH 494—Polymer Technology Laboratory (3). Recommended if ENCH 490 or 492 is taken.

Chemical Processing
ENCH 450—Chemical Process Development (3)

Process Analysis and Optimization
ENCH 452 —Advanced Chemical Engineering Analysis (3)
ENCH 453—Applied Mathematics in Chemical Engineering (3)
ENCH 454—Chemical Process Analysis and Optimization (3)

Admission

All Chemical Engineering majors must meet admission, progress and retention standards of the College of Engineering.

Advising

All students choosing Chemical Engineering as their primary field must see an undergraduate advisor each semester. Appointments for advising can be made at 2113 Chemical and Nuclear Engineering Building, 405-1914.

Co-op Program

The Chemical Engineering program works within the College of Engineering Cooperative Engineering Education Program. For information on this program consult the College of Engineering entry in this catalog or call 405-3863.

Financial Assistance

Financial aid based upon need is available through the Office of Student Financial Aid. A number of scholarships are available through the College of Engineering. Part-time employment is available in the department.

Honors and Awards

Annual awards are given to recognize scholarship and outstanding service to the department, college and university. These awards include the David Arthur Berman Memorial Award, the Engineering Society of Baltimore Award, and the American Institute of Chemists Award for the outstanding senior in chemical engineering. AIChE awards are given to the junior with the highest cumulative GPA as well as to the outstanding junior and outstanding senior in chemical engineering.

Student Organization

Students operate a campus student chapter of the professional organization, the American Institute of Chemical Engineers.

Course Code: ENCH

CHEMISTRY AND BIOCHEMISTRY (CHEM, BCHM)

College of Life Sciences

1320 Chemistry Building, 405-1788
Student Information: 1309 Chemistry Building, 405-1791

Professor and Chair: Greer
Associate Chair: DeShong
Director, Undergraduate Programs: Harwood
Professors: Alexander, Ammon, Armstrong, Bellama, DeShong, Dunaway-Mariano, Freeman, Gerlt, Greer, Grim, Hansen, Helz, Huheey, Jarvis†, Khanna, Kozarich, Mariano, Mazzocchi, Mignerey†, G. Miller, Moore, Munn, O'Haver, Ponnamperuma, Stewart, Tossell, Walters, Weiner
Associate Professors: Boyd, DeVoe, Herndon, Kasler, Murphy, Ondov, Poli, Sampugna, Thirumalai
Assistant Professors: Eichhorn, Falvey, Julin, C. Miller, Pilato, Ruett-Robey, Woodson
Emeriti: Castellan, Henery-Logan, Holmlund, Jaquith, Keeney, McNesby, Pratt, Rollinson, Sturtz, Svirbely, Vanderslice, Veitch
†Distinguished Scholar-Teacher

The Majors

The Department of Chemistry and Biochemistry offers the B.S. degree in both Chemistry and Biochemistry. Either curriculum is designed to prepare major students for entering graduate school, for career opportunities in chemical and pharmaceutical industries, for basic research positions in government and academic laboratories, or to attend professional schools.

Requirements for Chemistry Major

Beginning Fall 1991, majors in Chemistry or Biochemistry should take the new sequence CHEM 143-153, General Chemistry for Majors. Transfer students or students changing to the major after the freshman year will take a three-course sequence: CHEM 103,113,227.

The major in chemistry requires forty-one credits in chemistry, of which eighteen are lower-level and twenty-three are upper-level. Six credits of the twenty-three upper-level requirements must be selected from approved chemistry courses. The program is designed to provide the maximum amount of flexibility to students seeking preparation for either the traditional branches of chemistry or the interdisciplinary fields. In order to meet requirements for a degree to be certified by the American Chemical Society, students must select one laboratory course from their upper level chemistry electives.

A sample program, listing only the required or recommended courses, is given below. It is expected that each semester's electives will include courses intended to satisfy the general requirements of the University or of the College of Life Sciences, plus others of the student's choice.

Each required chemistry course must be passed with a minimum grade of C. Required supporting courses must be passed with a C average.

	Semester Credit Hours
CORE Requirements	29
College of Life Sciences Core Requirements	20
Departmental Requirements	41
CHEM 481—Physical Chemistry I	3
CHEM 483—Physical Chemistry Laboratory I	2
CHEM 482—Physical Chemistry II	3
CHEM 484—Physical Chemistry Laboratory II	2
CHEM 401—Inorganic Chemistry	3
CHEM 425—Instrumental Analysis	3
400—Level Chemistry courses	6
Electives	30
Total	120

Requirements for Biochemistry Major

The department also offers a major in biochemistry. In addition to the eighteen credits of lower-level chemistry, the program requires BCHM 461, 462, and 464; CHEM 481, 482 and 483; MATH 140 and 141; PHYS 141 and 142; and six credits of approved biological science that must include at least one upper-level course.

A sample program, listing only the required courses, is given below. It is expected that each semester's electives will include courses intended to satisfy the general requirements of the university or of the College of Life Sciences, plus others of the student's choice.

Each required chemistry and biochemistry course must be passed with a minimum grade of C. Required supporting courses must be passed with a C average.

	Semester Credit Hours
CORE Requirements	29
College of Life Sciences Core Requirements	20
Departmental Requirements	45-46
Approved Biological Science Elective	4
CHEM 481—Physical Chemistry I	3
CHEM 483—Physical Chemistry Laboratory I	2
CHEM 482—Physical Chemistry II	3
CHEM 425—Instrumental Analysis	3
BCHM 461—Biochemistry I	3
BCHM 462—Biochemistry II	3
BCHM 464—Biochemistry Laboratory II	2
Approved Upper-level Biological Science	3-4
Electives	26
Total	120-121

Advising

Advising is mandatory. Appointments for advising can be made by contacting the secretary in the Office of Undergraduate Studies, 1309 Chemistry Building, 405-1791.

Financial Assistance

Two scholarships are available for majors: The Isidore and Annie Adler Scholarship of $500 to an outstanding major with financial need and the Leidy Foundation Scholarship of $600 to two outstanding junior majors. No application is necessary as all majors are automatically reviewed by the Awards Committee.

Honors and Awards

In the senior year, CHEM 398, Special Problems for Honor Students, is an opportunity for students with a GPA of 3.0 or better to conduct honors research. Students must have completed one year of CHEM or BCHM 399, Undergraduate Research, to be considered for Departmental Honors as Seniors. Dr. Harwood (1309 Chemistry Building, 405-1791) is the coordinator. After successful completion of a senior thesis and seminar, graduation "with honors" or "with high honors" in Chemistry can be attained.

Student Organizations

Alpha Chi Sigma Chemistry Fraternity is a professional co-ed fraternity which recruits members from Chemistry, Biochemistry, and related science majors during each fall and spring semester. Members must have completed 1 year of General Chemistry and are expected to complete a minimum of 4 semesters of Chemistry. The fraternity, which averages 50 members, holds weekly meetings and provides tutoring once a week for students in lower division chemistry courses. The office is 1403 Chemistry Building. Dr. Boyd (1206 Chemistry Building, 405-1805) is the faculty moderator.

Course Codes: CHEM, BCHM

CIVIL ENGINEERING (ENCE)

College of Engineering

1173D Engineering Classroom Building, 405-1974

Chair: Colville
Professors: Aggour, Albrecht, Birkner, Carter, Donaldson, Maloney, McCuen, Ragan, Schelling, Sternberg, Vannoy, Witczak, Wolde-Tinsae
Associate Professors: Ayyub, L. Chang, P. Chang, Goodings, Hao, Schonfeld, Schwartz
Assistant Professors: Austin, Davis, Flood, Haghani, Johnson, Kartam, Sircar (Affiliate)
Senior Research Associate: Rib

The Major

Civil Engineering is a people-serving profession, concerned with the planning, design, construction and operation of large, complex systems such as buildings and bridges, water purification and distribution systems, highways, rapid transit and rail systems, ports and harbors, airports, tunnels and underground construction, dams, power generating systems and structural components of aircraft and ships. Civil engineering also includes urban and city planning, water and land pollution and treatment problems, and disposal of hazardous wastes and chemicals. The design and construction of these systems are only part of the many challenges and opportunities faced by civil engineers. The recent revolution in computers, communications and data management has provided new resources that are widely used by the professional civil engineer in providing safe, economical and functional facilities to serve our society.

Requirements for Major

At both the undergraduate and graduate levels, the department offers programs of study in all six major areas of specialization in civil engineering: construction engineering and management, environmental engineering, geotechnical engineering, structural engineering, transportation engineering, and water resources and remote sensing. A total of 132 credit hours is required for a Bachelor's degree with emphasis in basic science (mathematics, chemistry and physics), engineering science (mechanics of materials, statics and dynamics), basic civil engineering core courses, and sixteen credits of technical electives that may be selected from a combination of the six areas of civil engineering specialization. The curriculum provides a sensible blend of required courses and electives, which permits students to pursue their interests without the risk of overspecialization.

	Semester Credit Hours I	II
Sophomore Year		
Math 241—Calculus III	4	
Math 246—Differential Equations for Scientists and Engineers		3
PHYS 262, 263—General Physics II, III	4	4
ENES 220—Mechanics of Materials	4	
ENES 221—Dynamics		3
ENCE 201—Computational Methods in Civil Engineering I	3	
ENCE 255—Elementary Structural Analysis		3
CORE Program Requirements	3	3
Total	18	16
Junior Year		
ENCE 300—Fundamentals of Engineering Materials	3	
ENCE 301—Computational Methods in Civil Engineering II	3	
ENCE 315—Introduction to Environmental Engineering	3	
ENCE 320—Construction Engineering and Management		3
ENCE 321—Engineering Survey Measurements		1
ENCE 330—Basic Fluid Mechanics	3	
ENCE 340—Fundamentals of Soil Mechanics		3
ENCE 355—Elementary Structural Design	3	
ENCE 370—Fundamentals of Transportation Engineering		3
ENME 320—Thermodynamics		3
ENGL 393—Technical Writing		3
CORE Program Requirements	3	
Total	18	16
Senior Year		
ENCE Technical Electives (Group A, B, C, D, E, or F)*	7	3
ENCE Technical Electives*	3	3
ENEE 300—Principles of Electrical Engineering		3
ENCE 466—Design of Civil Engineering Systems		3
CORE Program Requirements	6	3
Total	16	15

Minimum Degree Requirements: 120 credits and the fulfillment of all department, college and university requirements.
* See notes concerning Technical Electives.

Additional semester credits will be involved to the extent that courses carrying more than three credits are selected.

Notes Concerning Technical Electives in Civil Engineering

A minimum of 16 credit hours of technical electives are required as follows:
(1) All 3 courses from one area of specialization A, B, C, D, E or F
(2) Two other courses from the entire technical elective list.

Technical Elective Groups:
A. Structures: ENCE 453 (4); 454 (3); 455 (3).
B. Water Resources: ENCE 430 (4); 431 (3); 432 (3).
C. Environmental: ENCE 433 (3); 435 (4); 436 (3)
D. Transportation: ENCE 470 (4); 473 (3); 474 (3).
E. Geotechnical: ENCE 440 (4); 441 (3); 442 (3).
F. Construction Engineering Management: ENCE 420 (3); 423 (4); 425 (3).
G. Support Courses: ENCE 410 (3); 462 (3); 463 (3); 464 (3); 465 (3); 489 (1-3).

Admission/Advising

See College of Engineering entrance requirements.

All students are assigned a faculty advisor who assists in course selection and scheduling throughout the student's entire undergraduate program. For advising contact Dr. Birkner, 405-1948, 1172 Engineering Classroom Building.

Fieldwork and Internship Opportunities

Several excellent co-op opportunities are available for Civil Engineering students. See the College of Engineering entry in this catalog for a full description of the Engineering co-op program, or contact Heidi Sauber, 405-3863.

Financial Assistance

The Department of Civil Engineering awards a number of academic scholarships. These awards are designated primarily for junior and senior students. A department scholarship committee solicits and evaluates applications each year.

Honors and Awards

See College of Engineering Honors Program. The Department of Civil Engineering offers the following awards: 1) The Civil Engineering Outstanding Senior Award; 2) The ASCE Outstanding Senior Award; 3) The Woodward-Clyde Consultants Award; 4) The Bechtel Award; 5) The Chi Epsilon Outstanding Senior Award; 6) The Ben Dyer Award; 7) The ASCE Maryland Section Award; and 8) The Department Chairman's Award.

Student Organizations

Student organizations include the American Society of Civil Engineers Student Chapter which is open to all civil engineering students. The Civil Engineering Honor Society, Chi Epsilon, elects members semi-annually. Information on membership and eligibility for these student organizations may be obtained from the president of each society, 0401 Engineering Classroom Building.

Course Code: ENCE

CLASSICS (CLAS)

College of Arts and Humanities

4220 Jimenez, 405-2014

Professor and Chair: Duffy
Associate Professors: Hallett, Lee, Staley
Assistant Professors: Doherty, Stehle

The Major

Classics is the study of the languages, literature, culture and thought of ancient Greece and Rome. Students at the University of Maryland at College Park may major in Classical Languages and Literatures with four options and may enroll in a variety of courses on the classical world. These options include Latin, Greek, Greek and Latin, and Classics in Translation.

Requirements for Major

Option A: Latin
Thirty credits of Latin at the 200-level or higher, at least twelve of which must be at the 400-level or higher, plus nine credits of supporting courses (for example, CLAS 170, HIST 130, and one 300- or 400-levels course in Roman history).

Option B: Greek
Thirty credits of Greek at the 200-level or higher, at least twelve of which must be at the 400-level or higher, plus nine hours of supporting courses (for example, CLAS 170, HIST 130, and a 300- or 400-level course in Greek history).

Option C: Greek and Latin
Thirty credits of either Greek or Latin and twelve hours of the other classical language, plus nine hours of supporting courses(for example, CLAS 170, HIST 130, and a 300- or 400-level course in Greek or Roman history). Students with no previous training in the second language may count introductory level courses as part of the twelve hour requirement.

Option D: Classics in Translation (Classical Humanities)
Eighteen credits in CLAS courses including CLAS 100 (Classical Foundations) and a senior seminar or thesis; twelve credits in Greek or Latin courses; twelve credits in supporting courses (normally in Art History, Archaeology, Architecture, Government, History, Linguistics or Philosophy). Note: CLAS 280 and CLAS 290 do not count toward this degree; 300- and 400-level courses in LATN and GREK may, with permission, be included among the eighteen required hours in CLAS.

Students must take language acquisition courses sequentially, i.e., 101, 102, 201, 202, etc. Once credit has been received in a higher level language acquisition or grammar course, a lower level course may not be taken for credit.

Course Codes: CLAS, GREK, LATN

COMPARATIVE LITERATURE PROGRAM (CMLT)

College of Arts and Humanities

2107 South Campus Surge Bldg., 405-2853

Core Faculty
Professor and Director: Lanser
Professors: Fuegi, Kolker, Lifton
Associate Professors: Marchetti, C. Peterson
Instructors: Gilcher, E. Robinson

Affiliate Faculty
Professors: Agar, Alford, E. Beck, Berlin, R. Brown, Chambers, Condé, Coogan, Cross, Diner, Fink, Frederiksen, Gillespie, Handelman, Hemdon, Holton, Kauffman, Pearson, Therrien, Trousdale
Associate Professors: Auchard, Barry, Bedos-Rezak, Bilik, Bolles, Brami, J. Brown, P. Butler, Caramello, Cottenet-Hage, Donawerth, Fahnestock, Falvo, Flieger, Grossman, Hallett, Igel, Kelly, Leinwand, Mintz, Mossman, Norman, Phaf, C. Robertson, Strauch
Assistant Professors: Coustaut, Doherty, Greene-Gantzberg, King, Rabasa, Ray, Richter, Upton, Wang, Yee

The Major

Undergraduates may emphasize comparative studies in literature, culture, film and media studies as they work toward a degree in a department associated with the Comparative Literature Program. Each student will be formally advised by the faculty of the "home" department in consultation with the Director of the Comparative Literature Program.

Students emphasizing comparative literature are expected to develop a high degree of competence in at least one foreign language.

Course Code: CMLT

COMPUTER SCIENCE (CMSC)

College of Computer, Mathematical and Physical Sciences

1103 A. V. Williams Building, 405-2672

Professor and Chair: Tripathi
Professors: Agrawala, Basili, Davis, Gannon, Kanal, Miller, Minker, O'Leary, Rosenfeld, Roussopoulos, Samet, Shneiderman, Stewart, Zelkowitz
Associate Professors: Aloimonos, Austing, Elman, Faloutsos, Gasarch, Hendler, Kruskal, Mount, Nau, Perlis, Purtilo, Ricart* (Computer Science Center), Reggia, Sellis, Shankar, Smith
Assistant Professors: Anderson, Dorr, Gerber, Khuller, Porter, Pugh, Salem, Subrahmanian
Instructor: Kaye
Professors Emeriti: Atchison, Chu, Edmundson
*Jointly with unit indicated.

The Major

Computer science is the study of computers and computational systems: their theory, design, development, and application. Principal areas within computer science include artificial intelligence, computer systems, database systems, human factors, numerical analysis, programming languages, software engineering, and theory of computing. Computer science incorporates concepts from mathematics, engineering, and psychology.

A computer scientist is concerned with problem solving. Problems range from abstract (determining what problems can be solved with computers and the complexity of the algorithms that solve them) to practical (design of computer systems easy for people to use). Computer scientists build computational models of systems including physical phenomena (weather forecasting), human behavior (expert systems, robotics), and computer systems themselves (performance evaluation). Such models often require extensive numeric or symbolic computation.

Requirements for Major

Changes in major requirements are under review. Students should check with a departmental advisor for updated information.

The course of study for a Computer Science major must satisfy all of the following requirements:

1. A grade of C or better in the following courses:
   a. CMSC 112 or an acceptable score on the Advanced Placement exam or the Department's CMSC 112 exemption exam.
   b. CMSC 150 or an acceptable score on the Department's CMSC 150 exemption exam.
   c. CMSC 113
   d. At least 24 credit hours at the 300-400 levels, including CMSC 311, CMSC 330 and at least 15 credit hours of the following CMSC courses:
      Computer Systems: 411; 412;
      Information Processing: 420; one of 421, 424, or 426;
      Software Engineering/Programming Languages: 430; 435;
      Theory of Computation: 451; 452;
      Numerical Analysis: one of 460 or 466; 467.
      Note: CMSC 421, 451, and 452 require CMSC 251 as an additional prerequisite. Courses in Numerical Analysis require MATH 240 or 241 as additional prerequisites. Students without either of these prerequisites must choose their 15 credits hours from the remaining courses in the other three areas.
2. MATH 140 and 141 (or Math 250, Math 251). A STAT course which has MATH 141 (or a more advanced mathematics course) as a prerequisite, and one other MATH, STAT, or MAPL course which as MATH 141 (or a more advanced mathematics course) as a prerequisite. A grade of C or better must be earned in each of the courses. No course that is cross-listed as CMSC may be counted in this requirement.
3. A minimum of 12 additional credit hours of 300-400 level courses in one discipline outside of computer science with an average grade of C or better. No course that is cross-listed as CMSC may be counted in this requirement.

Computer Science majors should take CMSC 150 and CMSC 113 in their first year. These courses emphasize the use of formal techniques in computer science: grammars, discrete mathematics, functional semantics, and program correctness.

Advising

Computer science majors may obtain advising at room 1103 A.V. Williams. Interested students should call (301) 405-2672 to receive further information about the program.

Financial Assistance

There are opportunities for student employment as a tutor or as a member of the department's laboratory staff. Professors may also have funds to hire undergraduates to assist in research. Many students also participate in internship or cooperative education programs, working in the computer industry for a semester during their junior or senior years.

Honors

A departmental honors program provides an opportunity for outstanding undergraduates to take graduate level courses or to begin scholarly research in independent study with a faculty member. Students are accepted into the program after their sophomore year based on their academic performance.

Student Organizations

Computer-related extracurricular activities are arranged by our student chapter of the ACM, the professional group for computer scientists and by the Minority Computer Science Society. Meetings include technical lectures and career information. The department also participates in the programming contest run by the national ACM, and our teams have been very successful in this competition.

Course Code: CMSC

COUNSELING AND PERSONNEL SERVICES (EDCP)

College of Education

3214 Benjamin Building, 405-2858

Professor and Chair: Rosenfield
Professors: Birk, Byrne (Emeritus), Hershenson, Magoon (Emeritus), Marx, Power, Pumroy (Emeritus), Schlossberg, Sedlacek
Associate Professors: Boyd, Greenberg, Hoffman, Kreiser (Affiliate), Lawrence, McEwen, Medvene (Affiliate), Scales (Affiliate), Strein, Teglasi, Westbrook (Affiliate)
Assistant Professors: Bagwell (Affiliate), Clement (Affiliate), Cook, Cuyjet (Affiliate), Fassinger, Freeman (Affiliate), Gast (Affiliate), Hrutka (Affiliate), Jacoby (Affiliate), Kandell, Komives, Lucas, Mielke (Affiliate), Osteen (Affiliate), Otani (Affiliate), Phillips, Schmidt (Affiliate), Stewart (Affiliate), Stimpson (Affiliate), Thomas (Affiliate)

The Department of Counseling and Personnel Services offers programs of preparation at the Master's degree, advanced graduate specialist, and doctoral degree levels for counselors in elementary and secondary schools, rehabilitation agencies, community agencies, business and industry, and college and university counseling centers. Additional graduate programs of preparation are provided for college student personnel administrators and school psychologists. The department also offers a joint doctoral program with the Department of Psychology in counseling psychology.

While the department does not have an undergraduate major, it does offer a number of courses which are open to undergraduates and are suggested for students considering graduate work in counseling or other human service fields.

Course Code: EDCP

CRIMINOLOGY AND CRIMINAL JUSTICE (CCJS)

College of Behavioral and Social Sciences

LeFrak Hall, 405-4699

Director and Professor: Wellford
Professors: Loftin, McDowall, Paternoster†, Sherman, Smith
Associate Professors: Gottfredson, Ingraham, Maida
Assistant Professor: Simpson
Lecturers: Brooks, Mauriello
Professor Emeritus: Lejins* (Sociology)

†Distinguished Scholar-Teacher.
*Joint Appointment with unit indicated.

The purpose of the Institute of Criminal Justice and Criminology is to provide an organization and administrative basis for the interests and activities of the university, its faculty and students in the areas usually designated as criminal justice, criminology, and corrections. The institute promotes study and teaching concerning the problems of crime and delinquency by offering and coordinating academic programs in the areas of criminal justice, criminology, and corrections; managing research in these areas; and conducting demonstration projects. The Institute sponsors the annual Alden Miller Lecture, the Criminal Justice Student Association, Alpha Phi Sigma, and an annual job fair. The institute comprises as its component parts:

1. The Criminology and Criminal Justice Program leading to a Bachelor of Arts degree.
2. Graduate Program offering M.A. and Ph.D. degrees in Criminology and Criminal Justice.

The Criminology and Criminal Justice Major

The major in criminology and criminal justice comprises thirty hours of coursework in Criminology and Criminal Justice. Eighteen (18) hours of supporting sequence selected from a list of social and behavioral science courses (list is available in the Institute) are required. No grade lower than a C may be used toward the major. An average of C is required in the supporting sequence. Nine hours of the supporting sequence must be at the 300/400 level. In addition an approved course in social statistics must be completed with a grade of C or better.

Major Requirements	Semester Credit Hours
CCJS100: Introduction to Criminal Justice	3
CCJS105: Criminology	3
CCJS230: Criminal Law in Action	3
CCJS300: Criminological and Criminal Justice Research Methods	3
CCJS340: Concepts of Law Enforcement Administration	3
CCJS350: Juvenile Delinquency	3
CCJS 451, 452, or 454	3
CCJS Electives (3)	9
Total	30

Supporting Sequence	Credit Hours
18 hours (9 hours at 300/400)	18
Social Science Statistics	3
Total for Major and Supporting	**51**

Electives for CCJS Majors (all courses are 3 credits):
CCJS234, CCJS320, CCJS330, CCJS331, CCJS352, CCJS357, CCJS359, CCJS360, CCJS398, CCJS399, CCJS400, CCJS432, CCJS444, CCJS450, CCJS451, CCJS452, CCJS453, CCJS454, CCJS455, CCJS456, CCJS457, CCJS461, CCJS462, and CCJS498.

Internships

Internships are available through CCJS398 and CCJS359 in a variety of federal, state, local, and private agencies.

Honors

Each semester the Institute selects the outstanding graduating senior for the Peter P. Lejins award.

The Honors Program provides superior students the opportunity for advanced study in both a seminar format and independent study under the direction of the faculty. The Honors Program is a three-semester (nine-credit hour) sequence that a student begins in the spring semester, three or four semesters prior to graduation. CCJS388H, the first course in the sequence, is offered only during the spring semester. The second and third courses in the sequence consist of a year-long research project (six credits, three each semester) or an honors thesis (one semester, three credits) followed by a graduate seminar in the institute (one semester, three credits). Honors students may count their Honors courses toward satisfaction on the basic 30-hour requirement. Requirements for admission to the Honors Program include a cumulative grade-point average of at least 3.25, no grade lower than B for any criminology and criminal justice course, and evidence of satisfactory writing ability.

Advising

All majors are strongly encouraged to see an advisor at least once each semester. Call 405-4699.

Course Code: CCJS

CURRICULUM AND INSTRUCTION (EDCI)

College of Education

2311 Benjamin Building, 405-3324

Professor and Chair: Howe
Professors: Davey, Fein, Fey* (Mathematics), Folstrom* (Music), Gambrell, Holliday, Jantz, Johnson, Layman* (Physics), Roderick, Saracho
Associate Professors: Afflerbach, Amershek, Beatty, P. Campbell, Cirrincione* (History/Geography), Craig, Davidson, DeLorenzo, Dreher, Graeber, Gentzler, Heidelbach, Klein, McCaleb* (Theatre), McWhinnie, Slater, Stough, Sullivan
Assistant Professors: Carey, Grant, McAlister, O'Flahaven, Owens* (Physical Education), Van Sledright, Wong
Emeriti: Blough, Carr, Duffey, Leeper, Risinger, Schindler, Stant, Weaver, Wilson

*Joint Appointment with unit indicated

The Major

The Department of Curriculum and Instruction offers three undergraduate curricula leading to the Bachelor of Science or Bachelor of Arts degree:

1. Early Childhood Education: for the preparation of teachers in preschool, kindergarten, and grades 1-3
2. Elementary Education: for the preparation of teachers of grades 1-8 and
3. Secondary Education: for the preparation of teachers in various subject areas for teaching in middle schools and secondary schools, grades 7-12. The subject areas include art, English, foreign language, mathematics, music, science, speech/English, social studies, and theatre/English.

Graduates of the Early Childhood, Elementary or Secondary Education programs meet the requirements for certification in the District of Columbia, Maryland and most other states.

Requirements for Major Including Program Options

All Teacher Education Programs have designated pre-professional courses and a specified sequence of professional courses. Before students may enroll in courses identified as part of the professional sequence, they must first gain admission to the College of Education's Teacher Education Program.

Admission

Application for admission to the Teacher Education Professional Program must be made early in the semester prior to beginning professional courses. Admission procedures and criteria are explained in "Entrance Requirements" in the College of Education entry in this catalog.

Advising

Advising is mandatory for all students desiring acceptance into the Teacher Education Program. Students will receive advising through advising workshops which will be held during the pre-registration period. Information regarding advising workshop schedules will be available each semester with pre-registration materials. Walk-in advising hours are also posted each semester. Check in the department office, Room 2311 Benjamin.

Honors and Awards

Early Childhood Education majors are eligible for the Ordwein Scholarship. Information is available in the Dean's office (Room 3119).

EARLY CHILDHOOD EDUCATION

Graduates of the Early Childhood Education program receive a Bachelor of Science degree and meet the requirements for teaching preschool, kindergarten and primary grades.

Required courses

The following courses are required in the program of studies for Early Childhood and may also satisfy the University's general education requirements (USP and CORE). See departmental worksheets and advisors and the Schedule of Classes.

PSYC 100 (3)
*Social Science or History Courses: ANTH, GEOG, GVPT, ECON, SOCY (6)
HIST 156 (3)
Biological Science with Lab: BIOL, BOTN, MICRO (4)
Physical Science/Lab: ASTR, CHEM, GEOL, PHYS (4)

Other Pre-Professional Requirements
SPCH (100, 125, or HESP 202 recommended) (3)
MATH 210, 211 (4, 4)
MUSC 155 (3)
Creative Arts: One of the following: KNES 181, 183, 421: THET 120, 311, ARTT 100 (3)
Education Electives: One of the following: FMCD 332, SOCY 343, NUTR 100, EDCI 416 (3)
EDCI 280 School Service Semester (3)
EDPA 301 Foundations of Education (3)

Professional Courses
The Early Childhood Professional Block 1 starts only in Fall Semester and is a prerequisite to Professional Block 2. All pre-professional requirements must be completed with a minimum grade of "C" before beginning the Early Childhood Professional Blocks. All pre-professional and professional courses must be completed with a minimum grade of C prior to student teaching.

Professional Block I:
EDCI 313 Creative Activities and Materials for the Young Child (3)
EDCI 443A Literature for Children and Youth (3)
EDHD 419A Human Development and Learning in School Settings (3)
EDCI 312 Professional Development Seminar (3)
EDCI 488E Field Problem Analysis (3)

Professional Block II:
EDCI 315 The Young Child in the Social Environment (3)
EDCI 316 The Teaching of Reading: Early Childhood (3)
EDCI 317 The Young Child and the Physical Environment (3)
EDCI 314 Teaching Language, Reading, Drama and Literature (3)
EDHD 419B Human Development and Learning in School Settings (3)

Professional Block III.
EDCI 411 Student Teaching: Preschool (4)
EDCI 412 Student Teaching: Kindergarten (4)
EDCI 413 Student Teaching: Primary Grades (8)

ELEMENTARY EDUCATION

Students who complete the elementary curriculum will receive the Bachelor of Science degree and will meet the Maryland State Department of Education requirements for the Standard Professional Certificate in

Elementary Education. Students admitted to Elementary Education must complete the following program which includes an area of concentration and a senior thesis.

Required Courses: Courses which may satisfy the University's general education requirements (USP OR CORE) and which are required in the Elementary Education program of studies are as follows:
HIST 156 (3).
Biological Science/Lab or Physical Science/Lab (4) USP Area B
Social Science: ANTH, ECON, GVPT, GEOG, HIST (3) Area A or D
SOCY 230 (3) Area D

Other Pre-Professional Requirements
MATH 210 (4), 211 (4)
Speech Requirement (3) Any speech course or HESP 202
Biological Science/Lab or Physical Science/Lab (4) Area B
EDCI 301 or ARTT 100 or ARTT 110 (3)
EDCI 443 (3)
MUSC 155 (3)
EDCI 280 (3)

Coursework to complete the Area of Concentration (18 semester hours) can be chosen from the following areas: Communications, Foreign Language, Literature, Math, Science, Social Studies. The EDCI Advising Office has detailed information regarding each area of concentration. All preprofessional coursework must be completed with a "C" or better prior to entering professional courses.

Professional Courses:
All professional courses must be completed with a grade of "C" or better. All preprofessional and professional coursework must be completed with a "C" or better prior to student teaching.

Professional Coursework to be taken prior to Professional Semester 2
EDCI 397—Principles and Methods of Teaching (3)
EDHD 300E—Human Development and Learning (6)
EDCI 385—Computer Education for Teachers (3)
EDMS 410—Principles of Testing and Evaluation (3)
EDPA 301—Foundations of Education (3)

Professional Semester 2
EDCI 322—Curriculum and Instruction in Elementary Education: Social Studies (3)
EDCI 342—Curriculum and Instruction in Elementary Education: Language Arts (3)
EDCI 352—Curriculum and Instruction in Elementary Education: Mathematics (3)
EDCI 362 Curriculum and Instruction in Elementary Education: Reading (3)
EDCI 372 Curriculum and Instruction in Elementary Education: Science (3)

Professional Semester 3
EDCI 481—Student Teaching: Elementary (12)
EDCI 464—Clinical Practices in Reading Diagnosis and Instruction (3)

Professional Semester 4
EDCI 497—The Study of Teaching (3)
EDCI 489—Field Experiences in Education (3)

SECONDARY EDUCATION

The Bachelor of Arts degree is offered in the teaching fields of art, English, foreign languages, mathematics, social studies, speech/English, and theatre/English. The Bachelor of Science degree is offered in art, mathematics, music, science, social studies and speech/English, and theatre/English. In the areas of art and music, teachers are prepared to teach in both elementary and secondary schools. All other programs prepare teachers for grades five through twelve.

All preprofessional and professional courses must be completed with a grade of "C" or better prior to student teaching.

Foreign Language Requirement Bachelor of Arts Degree.

All students who pursue the Bachelor of Arts degree in secondary education are required to complete two years (twelve semester hours) or the equivalent of a foreign language at the college level. If students have had three years of one foreign language or two years of each of two foreign languages as recorded on their high school transcripts, they are not required to take any foreign languages in the college, although they may elect to do so.

If students are not exempt from the foreign language requirements, they must complete courses through the 104 level of a modern language or 204 level of a classical language.

In the modern languages: French, German, and Spanish students should take the placement test in the language in which they have had work if they wish to continue the same language; their language instruction would start at the level indicated by the test. With classical languages, students would start at the level indicated in this catalog

For students who come under the provisions above, the placement test may also serve as a proficiency test and may be taken by a student any time (once a semester) to try to fulfill the language requirement.

Students who have studied languages other than French, German, or Spanish, or who have lived for two or more years in a foreign country where a language other than English prevails, shall be placed by the chair of the respective language section, if feasible, or by the chairs of the foreign language departments. Native speakers of a foreign language shall satisfy the foreign language requirements by taking twelve semester hours of English.

English Education

A major in English Education requires forty-five semester hours in English and speech. All electives in English must be approved by the student's advisor. Intermediate mastery of a modern or classical language is required. Changes in major requirements are under review. Students should check with a departmental advisor for updated information.

Pre-professional/Subject Area Coursework
SPCH 100, 125, or 220 (3)
Foreign Language (4, 4)
ENGL 101—Introduction to Writing or ENGL 101H (3)
ENGL 201—World Literature or ENGL 202 (3)
ENGL 281—Standard English Grammar, Usage, and Diction (3)
ENGL 310—Medieval and Renaissance British Literature (3)
ENGL 311—Baroque and Augustan British Literature (3)
ENGL 312—Romantic to Modern British Literature (3)
ENGL 301—Critical Methods in the Study of Literature or ENGL 453 (3)
LING 200—Introductory Linguistics (3)
SPCH 230—Argumentation and Debate or SPCH 330, 350 or 401 (3)
ENGL 384—Concepts of Grammar or ENGL 385, 482, or 484 (3)
ENGL 304—The Major Works of Shakespeare (3) or ENGL 403 or 404 (3)
ENGL 313—American Literature or ENGL 430, 431, 432 or 433 (3)
EDCI 466—Literature for Adolescents (3)
EDCI 467—Teaching Writing (3)
ENGL 391—Advanced Composition or ENGL 393 or 493 (3)
ENGL Electives (Upper level) (9)

Professional Courses
EDHD 300S—Human Development and Learning (6)
EDPA 301—Foundations of Education (3)
EDCI 390—Principles and Methods of Secondary Education (3)
EDCI 447—Field Experience in English, Speech, Drama Teaching (1)
EDCI 340— Curriculum and Instruction in Secondary Education: English/Speech/Drama (3)
EDCI 463—The Teaching of Reading in the Secondary School (3)
EDCI 441—Student Teaching Secondary Schools: English (12)
EDCI 440—Student Teaching Seminar in Secondary Education: English, Speech, Drama (1)

Art Education, K-12

Pre-professional/Subject Area Coursework
ARTH 100—Introduction to Art (3)
ARTT 110—Elements of Drawing (3)
ARTT 100—Elements of Design (3)
SPCH 100—Basic Principles of Speech Communication or 125 or 220 (3)
ARTH 200—Art of the Western World I (3)
ARTH 201—Art of the Western World II (3)
ARTT 320—Elements of Painting
EDIT 273—Practicum in Ceramics (3)
ARTT 330—Elements of Sculpture (3)
ARTT 428—Painting II (3)
EDCI 406—Practicum in Art Education: Two Dimensional (3) [Fall Only]
EDCI 403—Teaching of Art Criticism in Public Schools (3) [Spring Only]
EDCI 407—Practicum in Art Education: Three Dimensional (3)
ARTT 340—Elements of Printmaking: Intaglio

Professional Courses
EDHD 300S—Human Development and Learning (6)
EDCI 390—Principles and Methods of Secondary Education (3)
EDCI 480—The Child and the Curriculum Elementary (3)
EDPA 301—Foundations of Education (3)
EDCI 300—Curriculum and Instruction in Art Education (3) [Fall Only]
EDCI 401—Student Teaching in Elementary Schools Art (4-8)
EDCI 402—Student Teaching in Secondary Schools Art (2-8)
EDCI 489—Field Experiences in Education (3) [With Student Teaching]

Foreign Language Education

The Foreign Language (FL) Education curriculum is designed for prospective foreign language teachers in middle through senior high schools who have been admitted to the EDCI Teacher Education Program. Currently, admission is open to qualified students seeking teacher certification in **Spanish, French, Russian, and German only.**

A minimum of six hours of intermediate level language course work in the student's major language must precede the required 300-400 level courses. The latter are comprised of a minimum of thirty hours of prescribed course work which includes the areas of grammar and composition, conversation, literature, civilization and culture, and linguistics. Students must also take a minimum of nine hours (three courses) of electives in a **related** area. Students are strongly advised to utilize these nine hours to begin or continue the study of another language as soon as possible after entering the university. The second area of concentration must be approved by a FLED advisor and may be in any foreign language regardless of whether or not it is a Maryland State Department of Education approved FL certification program.

The following requirements must be met with the FL Education program:

Pre-Professional/Subject Area Course Work

SPCH 100, 125, or 220—Basic Principles of Speech Communication (3)
Primary FL Area—Intermediate (200 level) (3,3)
Primary FL Area—Grammar and Composition (300-400 levels) (3,3)
Primary FL Area—Survey of Literature (300-400 levels) (3,3)
Primary FL Area—Conversation (300-400 levels) (3,3)
Primary FL Area—Literature (400-above levels) (3,3)
Primary FL Area—Culture and Civilization (3)
Applied Linguistics (**In the Primary FL** Area if available; otherwise, **LING 200** or ANTH 371)—FL Phonetics **does not** satisfy this requirement). (3)

Electives in FL-Related Courses (9 hours—Minimum of three courses). It is **strongly recommended** that these hours be utilized to begin or continue the study of another foreign langauge as soon as possible.

All Primary FL Area courses must have been completed prior to the Student Teaching semester. Any substitutions for the above must be pre-approved by a FL Education advisor.

Professional Courses

EDHD 300S—Human Development and Learning (3)
EDPA 301—Foundations of Education (3)
EDCI 390—Principles and Methods of Secondary Education (3)
EDCI 400—Level FL Education Elective only in consultation with FL Education. Advisor (3)
EDCI 330—Curriculum and Instruction in Secondary Education: Foreign Language (3) **Pre-requisites EDCI 300S, All Primary FL Area course work**
EDCI 430—Seminar in Student Teaching (3) (Taken **concurrently** with EDCI 431. only) **Pre-requisite EDCI 330.**
EDCI 431—Student Teaching in the Secondary Schools (12) (Taken **concurrently**. with EDCI 430 only) **Pre-requisites EDCI 330 and 301.**

Mathematics Education

Students completing an undergraduate major in astronomy, physics, physical sciences, or in mathematics, or who may be enrolled in the College of Education, may prepare to teach astronomy, physics, physical science, or mathematics. Early contact should be made with either Dr. John Layman (astronomy, physics, physical sciences) or Dr. James Fey (mathematics). See also the entry on the College of Education in this catalog.

A major in mathematics education requires the completion of MATH 241 or its equivalent, and a minimum of 15 semester hours of mathematics at the 400 level (excluding MATH 490); 400 level courses beyond those prescribed (402 or 403; 430) should be selected in consultation with a mathematics education advisor. The mathematics education major must be supported by one of the following science sequences: CHEM 103 and 113, or CHEM 103 and 104; PHYS 221 and 222 or PHYS 161 and 262, or PHYS 141 and 142; BIOL 105 and 106; ASTR 200 and three additional hours in ASTR (none of which include ASTR 100, 101, 110 or 111). Also CMSC 110 or 120 is required.

Pre-professional/Subject Area Course Work
SPCH 100, 125 or 220 (3)
MATH 140, 141—Calculus I, II (4,4)
Science Requirement (7-10) (See above)
MATH 240, 241—Linear Algebra, Calculus III (4,4)
CMSC 110—Introduction to Fortran Programming or
CMSC 120—Introduction to Pascal Programming (4,4)
MATH 430—Euclidean and Non-Euclidean Geometries (3)
MATH 402—Algebraic Structures or
MATH 403—Introduction to Abstract Algebra (3)
MATH Electives (400-level) (9)

Professional Courses
EDHD 300S—Human Development and Learning (6)
EDCI 390—Principles and Methods of Secondary Education (3)
EDCI 350—Curriculum and Instruction in Secondary Education: Mathematics (3)
EDPA 301—Foundations of Education (3)
EDCI 457—Teaching Secondary Students with Difficulties in Learning Mathematics (3)
EDCI 451—Student Teaching in Secondary Schools: Mathematics (12)
EDCI 450—Student Teaching Seminar in Secondary Education: Mathematics Education (3)

Music Education, K-12

Changes in major requirements are under review. Students should check with a departmental advisor for updated information.

The curriculum in music leads to a Bachelor of Science degree in education with a major in music education. It is planned to meet the demand for specialists, supervisors, and resource teachers in music in the schools. The program provides training in the teaching of general music/choral and instrumental music and leads to certification to teach music at both elementary and secondary school levels in Maryland and most other states. There are two options. The general music/choral option is for students whose principal instrument is voice or piano; the instrumental option is for students whose principal instrument is an orchestral or band instrument. Students are able to develop proficiency in both certifications by taking additional courses.

Auditions are required for admission to the program. All students teach and are carefully observed in clinical settings by members of the music education faculty. This is intended to ensure the maximum development and growth of each student's professional and personal competencies. Each student is assigned to an advisor who guides him or her through the various stages of advancement in the program of music and music education.

Instrumental

Pre-professional/Subject Area Coursework
MUSP 109, 110—Applied Music (Principal Instrument) (2,2)
MUSC 150, 151—Theory of Music I, II (3,3)
MUSC 102, 103—Beginning Class Piano I, II (2,2)
MUSC 116, 117—Study of Instruments (2,2)
SPCH 100, 125, or 220 (3)
MUED 197—Pre-Professional Experiences (1)
MUSP 207, 208—Applied Music (Principal Instrument) (2,2)
MUSC 250, 251—Advanced Theory of Music I, II (4,4)
MUSC 113, 121—Class Study of Instruments (2,2)
MUSC 230—History of Music I (3)
MUSP 305, 306—Applied Music (Principal Instrument) (2,2)
MUSC 490, 491—Conducting (2)
MUSC 120, 114—Class Study of Instruments (2,2)
MUED 470—General Concepts for Teaching Music (1)
MUED 411—Instrumental Music: Elementary (3)
MUED 420—Instrumental Music: Secondary (2)
MUED 410—Instrumental Arranging (2)
MUSC 330, 331—History of Music (3,3)
MUSP 409—Applied Music (Principal Instrument) (2)
MUSC 229—Ensemble (7)

Professional Courses
EDHD 300S—Human Development and Learning (6)
EDPA 301—Foundations of Education (3)
EDCI 390—Principles and Methods of Secondary Education (3)
EDCI 484/494—Student Teaching: Music (4) (4)

General Music/Choral

Pre-professional/Subject Area Coursework
Other Academic Support Courses
MUSP 109, 110—Applied Music (Principal Instrument) (2,2)
MUSC 150, 151—Theory of Music I, II (3,3)
MUSC 100— Class Voice, MUSC 200 Advanced Class Voice (2,2) or MUSC 102, 103—Class Piano (2,2)
MUED 197—Pre-Professional Experiences (1)
SPCH 100, 125, or 220 (3)
MUSP 207, 208—Applied Music (Principal Instrument) (2,2)
MUSC 230—Music History (3)
MUSC 202, 203—Advanced Class Piano (2,2)
MUSC 250, 251—Advanced Theory of Music (4,4)
MUSP 405, 409—Applied Music (Principal Instrument) (2,2)
MUSC 453—Guitar-Recorder Methods (2)
MUED 472—Secondary Choral Methods (2)
MUSC 490, 491—Conducting (2,2)
MUED 478—Special Topics in Music Education (1)
MUED 470—General Concepts for Teaching Music (1)
MUED 471—Elementary General Music Methods (3)
MUSC 330, 331—History of Music (3,3)
MUSC 410—Applied Music (Principal Instrument) (2)
MUSC 329—Major Ensemble (7)

Professional Courses
EDHD 300S—Human Development and Learning (6)
EDCI 390—Principles and Methods of Secondary Education (3)
EDPA 301—Foundations of Education (3)
EDCI 484/494—Student Teaching: Music (4) (4)
*Varies according to incoming placement

Physical Education and Health Education

This curriculum is designed to prepare students for teaching physical education and health in elementary and secondary schools. To obtain full particulars on course requirements, the student should refer to the sections on the Department of Kinesiology and the Department of Health Education.

Science Education

A science major consists of a minimum of sixty semester hours' study in the academic sciences and mathematics.

The following courses are required for all science education majors: BIOL 105; 106; CHEM 103; CHEM 104 (except chemistry, physics, and earth science education majors who take CHEM 113); GEOL 100-110; PHYS 121-122 or 141-142; and six semester hours of mathematics. Science education majors must achieve a minimum of grade C in all required mathematics, science, and education coursework.

An area of specialization planned with the approval of the student's advisor, must be completed in biology, chemistry, earth science and physics as noted below.

Biology Education

Pre-professional/Subject Area Coursework
MATH 110—Elementary Mathematical Models (3)
BIOL 105—Principles of Biology I (4)
BIOL 106—Principles of Biology II (4)
MATH 111—Introduction to Probability (3)
CHEM 103—General Chemistry I (4)
CHEM 104—Fundamentals of Organic and Biochemistry (4)
ZOOL 201 or 202—Human Anatomy and Physiology I and II (4)
BOTN 207—Plant Diversity or ZOOL 210 Animal Diversity (4)
MICB 200—General Microbiology (4)
PHYS 121—Fundamentals of Physics I (4)
GEOL 100/110—Physical Geology and Laboratory (4)
SPCH 107, 125 or HESP 202 (3)
BIOL 222—Principles of Genetics (4)
BOTN 441—Plant Physiology (4)
ZOOL 480 (4), BOTN 212 (4), and ENTM 205
PHYS 122—Fundamentals of Physics II (4)
BOTN 462-464 or ZOOL 212 Plant Ecology (4)

Professional Courses
EDHD 300S—Human Development and Learning (6)
EDPA 301—Foundations of Education (3)
EDCI 390—Principles and Methods of Secondary Education (3)
EDCI 370—Curriculum and Instruction in Secondary Education Science (3)
EDCI 471—Student Teaching in Secondary Schools Science (12)
EDCI 371—Computers in the Science Classroom and Laboratory (2)
EDCI 470—Student Teaching Seminar in Secondary Education: Science (1)

Chemistry Education

Pre-professional/Subject Area Coursework
BIOL 105—Principles of Biology I (4)
BIOL 106—Principles of Biology II (4)
CHEM 103—General Chemistry I or 105 (4)
CHEM 113—General Chemistry II or 104 (4)
MATH 140, 141—Calculus I and II (4, 4)
SPCH 107, 125 or HESP 202 (3)
CHEM 233, 243—Organic Chemistry I and II (4, 4)
PHYS 141, 142—Principles in Physics (4, 4)
GEOL 100, 110—Physical Geology and Lab (4)
CHEM 321—Quantitative Analysis (4)
CHEM 481, 482—Physical Chemistry I and II (3,3)
CHEM 483—Physical Chemistry Laboratory I (2)
CHEM Elective (3)

Professional Courses
EDHD 300S—Human Development and Learning (6)
EDPA 301—Foundations of Education (3)
EDCI 390—Principles and Methods of Secondary Education (3)
EDCI 370—Curriculum and Instruction in Secondary Education Science (3)
EDCI 471—Student Teaching in Secondary Schools Science (12)
EDCI 371—Computers in the Science Classroom and Laboratory (2)
EDCI 470—Student Teaching Seminar in Secondary Education: Science (1)

Earth Science Education

Pre-professional/Subject Area Coursework
GEOL 100, 110—Physical Geology, Lab (4)
GEOL 102—Historical Geology and Lab (4)
BIOL 105—Principles of Biology I (4)
BIOL 106—Principles of Biology II (4)
MATH 110 or 140—Elementary Mathematical Models (3)
or
Calculus I (3)
MATH 111 or 141—Introduction to Probability (3)
or
Calculus II (3)
SPCH 107 or 125 or HESP 202 (3)
GEOL 322—Mineralogy (4)
GEOL 340—Geomorphology (4)
GEOL 341—Structural Geology (4)
CHEM 103, 113—General Chemistry I and II (4,4)
ASTR 101—General Astronomy (4)
PHYS 121, 122—Fundamentals of Physics I and II (4, 4)

Professional Courses
EDHD 300S—Human Development and Learning (6)
EDCI 390—Principles and Methods of Secondary Education (3)
EDCI 370—Curriculum and Instruction in Secondary Education Science (3)
EDPA 301—Foundations of Education (3)
EDCI 471—Student Teaching in Secondary Schools Science (12)
EDCI 371—Computers in the Science Classroom and Laboratory (2)
EDCI 470—Student Teaching Seminar in Secondary Education: Science (1)

Physics Education

Pre-professional/Subject Area Coursework
CHEM 103, 113—General Chemistry I and II (4,4)
MATH 140, 141—Calculus I and II (4,4)
PHYS 141, 142—Principles of General Physics I and II (4,4) or Engineering or Physics Majors Sequence
SPCH 107, 110, or HESP 202 (3)
BIOL 105—Principles of Biology I (4)
BIOL 106—Principles of Biology II (4)
PHYS 275—Experimental Physics I (1)
PHYS 276—Experimental Physics II (2)

PHYS 375—Experimental Physics III (2)
ASTR 101—General Astronomy (4)
MATH 240—Linear Algebra (4)
PHYS 410—Intermediate Theoretical Physics (3)
PHYS 420—Principles of Modern Physics (3)
PHYS 305—Physics Shop Techniques (1)
GEOL 100—Physical Geology (3)
GEOL 110—Physical Geology Laboratory (1)
PHYS 406—Optics (3)
PHYS 499—Special Problems in Physics (2)

Professional Courses
EDHD 300S—Human Development and Learning (6)
EDPA 301—Foundations of Education (3)
EDCI 390—Principles and Methods of Secondary Education (3)
EDCI 370—Curriculum and Instruction in Secondary Education Science
EDCI 471—Student Teaching in Secondary Schools Science (12)
EDCI 470—Student Teaching Seminar in Secondary Education: Science (1)
EDCI 371—Computers in the Science Classroom and Laboratory (2)

Social Studies Education

Option I HISTORY: Requires fifty-four semester hours of which at least twenty-seven must be in history, usually at least six hours in American history; six hours of non-American history; three hours in Pro-Seminar in Historical Writing; and twelve hours of electives, nine of which must be 300-400 level. One course in Ethnic and Minority Studies must be included.

Pre-professional/Subject Area Coursework
SPCH 100, 125 or 110 (3)
HIST 156, 157 (U.S.) (6)
HIST (non U.S.) (6)
SOCY 100 or ANTH 101 (3)
GEOG 100—Introduction to Geography (3)
GEOG 201, 202 or 203 (3)
ECON 205—Fundamentals of Economics (3)
ECON 310—Evolution of Modern Capitalism (3)
GVPT 100, 240, 260, or 280 (3)
GVPT 170—American Government (3)
Social Sciences Electives, upper level (6)
History Electives (12)

Professional Courses
EDHD 300S—Human Development and Learning (6)
EDCI 390—Principles and Methods of Secondary Education (3)
EDCI 320—Curriculum and Instruction in Secondary Education—Social Studies. (3)
EDCI 421—Student Teaching in Secondary Schools—Social Studies (12)
EDCI 463—Teaching of Reading in Secondary Schools (3)
EDCI 420—Student Teaching Seminar in Secondary Education—Social Studies (3)
EDPA 301—Foundations of Education (3)

Option II GEOGRAPHY: Requires fifty-four semester hours of which twenty-seven hours must be in geography. GEOG 201, 211, 202, 203 are required. The remaining eighteen hours in geography must be upper level courses with one course in regional geography included. One course in Ethnic and Minority Studies must be included.

Pre-professional/Subject Area Coursework
SPCH 100, 125 or 110 (3)
GEOG 201—Geography of Environmental Systems (3)
GEOG 211—Geography of Environmental Systems Laboratory (1)
GEOG 202—The World in Cultural Perspective (3)
GEOG 203—Economic Geography (3)
GEOG Electives (18) HIST (U.S.) 156 or 157 (3)
HIST (non-U.S.) 101, 130-133, 144-145 (3)
SOCY 100 or ANTH 101 (3)
ECON 205—Fundamentals of Economics (3)
ECON 310—Evolution of Modern Capitalism (3)
GVPT 100, 240 or 280 (3)
GVPT 170—American Government (3)
History/Social Science Elective (3)

Professional Courses
EDHD 300S—Human Development and Learning (6)
EDCI 390—Principles and Methods of Secondary Education (3)
EDCI 320—Curriculum and Instruction in Secondary Education—Social Studies (3)
EDCI 421—Student Teaching in Secondary Education—Social Studies (12)
EDCI 420—Student Teaching Seminar in Secondary Education— Social Studies (3)
EDCI 463—Teaching Reading in Secondary Schools (3)
EDPA 301—Foundations of Education (3)

Speech/English Education

Students interested in teaching speech in secondary schools complete a minimum of 30 credits in speech and speech-related courses. Because most speech teachers also teach English classes, the program includes another 30 credits in English and English education. Upon selection of this major, students should meet with an advisor to carefully plan their programs.

In addition, intermediate mastery of a modern or classical language is required for a B.A.

Pre-professional/Subject Area Coursework
Speech Area (6): SPCH 100—Foundations of Speech Communication or SPCH 107—Speech Communication, SPCH 110—Voice and Diction, SPCH 125—Interpersonal Communication. SPCH 220—Group Discussion, SPCH 230—Argumentation and Debate, SPCH 340—Oral Interpretation SPCH 470—Listening (3)
SPCH 200—Advanced Public Speaking (3)
RTVF 124—Mass Communication in 20th Century or RTVF 222 or RTVF 314 (3)
HESP 202—Introduction to Hearing and Speech Sciences or HESP 305 or HESP 400 (3)
THET 110—Introduction to Theatre (3)
SPCH 350—Foundations of Communication Theory or SPCH 402 (3)
SPCH 401—Foundations of Rhetoric (3)
SPCH Upper level electives (6)
ENGL 101—Introduction to Writing (3)
LING 200—Introduction to Linguistics (3)
ENGL 201—or 202 World Literature (3)
ENGL 281—Standard English Grammar, Usage, and Diction or ENGL 385 or ENGL 482 or ENGL 484 (3)
ENGL 301—Critical Methods in the Study of Literature or ENGL 453 (3)
ENGL 310, 311 or 312—English Literature (3)
ENGL 313—American Literature (3)
ENGL 391 or 393—Advanced Composition or Technical Writing (3)
EDCI 463—Teaching of Reading (3)
EDCI 466—Literature for Adolescents (3)
EDCI 467—Teaching Writing (3)

Professional Courses
EDHD 300S—Human Development and Learning (6)
EDCI 390—Principles & Methods of Secondary Education (3)
EDPA 301—Foundations of Education (3)
EDCI 340—Curriculum & Instruction in Secondary Education: Eng/Spch/Drama (3)
EDCI 447—Field Experiences (1)
EDCI 442—Student Teaching in Speech (6)
EDCI 441—Student Teaching in English (6)
EDCI 440—Student Teaching Seminar (1)

Theatre/English Education

Students interested in teaching theatre in secondary schools complete a minimum of 30 credits in theatre and theatre-related courses. Because most theatre teachers also teach English classes, the program includes another 30 credits in English and English education. Upon selection of this major, students should meet with an advisor to carefully plan their programs.

In addition, intermediate mastery of a modern or classical language is required for a B.A.

Pre-professional/Subject Area Coursework
THET 120—Acting I Fundamentals (3)
THET 170—Stagecraft (3)
THET 273—Scenographic Techniques or THET 476 or THET 480 (3)
THET 330—Play Directing (3)
THET 460—Theatre Management (3)
THET 479—Theatre Workshop (3)
THET 490—History of Theatre I (3)
THET 491—History of Theatre II (3)
THET electives (3)
SPCH 100—Foundations of Speech Communiction or SPCH 107 or SPCH 200 or SPCH 230 (3)
ENGL 101—Introduction to Writing (3)
LING 200—Introduction to Linguistics (3)

ENGL 201 or 202—World Literature (3)
ENGL 281—Standard English Grammar, Usage, and Diction or ENGL 385 or ENGL 482 or ENGL 484 (3)
ENGL 310, 311, or 312—English Literature (3)
ENGL 313—American Literature (3)
ENGL 301—Critical Methods in the Study of Literature or ENGL 453 (3)
ENGL 391 or 393—Advanced Composition or Technical Writing (3)
EDCI 463—Teaching of Reading (3)
EDCI 467—Teaching Writing (3)
EDCI 466—Literature for Adolescents (3)

Professional Courses
EDHD 300S—Human Development and Learning (6)
EDCI 390—Principles & Methods of Secondary Education (3)
EDPA 301—Foundations of Education (3)
EDCI 340—Curriculum & Instruction in Secondary Education: Eng/Spch/Drama (3)
EDCI 447—Field Experience (1)
EDCI 448—Student Teaching in Theatre (6)
EDCI 441—Student Teaching in English (6)
EDCI 440—Student Teaching Seminar (1)

Course Code: EDCI

DANCE (DANC)

College of Arts and Humanities

Dance Building, 405-3180

Professor and Chair: Wiltz
Professors: Madden (Emerita), Rosen, A. Warren, L. Warren
Associate Professor: Dunn
Assistant Professor: J. Frosch-Schroder
Instructor: Mayes
Lecturers: Druker, Fleitell, Jackson, Rolland, Slater
Accompanists: Freivogel, Johnson

The Major

Recognizing that dance combines both athleticism and artistry, the dance program offers comprehensive technique and theory courses as a foundation for the dance professions. By developing an increasing awareness of the physical, emotional and intellectual aspects of movement in general, the student eventually is able to integrate his or her own particular mind-body consciousness into a more meaningful whole. To facilitate the acquisition of new movement skills, as well as creative and scholarly insights in dance, the curriculum provides a structured breadth of experience at the lower level. At the upper level students may either involve themselves in various general university electives, or they may concentrate their energies in a particular area of emphasis in dance. Although an area of emphasis is not mandatory, many third and fourth year students are interested in studying a singular aspect of dance in depth, such as performance, choreography, production/management, or general studies (encompassing dance history, literature and criticism).

The dance faculty is composed of a number of distinguished teachers, choreographers, and performers, each one a specialist in his or her own field. Visiting artists throughout the year make additional contributions to the program. There are several performance and choreographic opportunities for all dance students, ranging from informal workshops to fully mounted concerts both on and off campus.

Requirements for Major

Students must complete fifty-nine semester hours of dance credits. Of these, eighteen hours of modern technique and four hours of ballet technique are required. Majors may not use more than seventy-two DANC credits toward the total of 120 needed for graduation. In addition to the twenty-two technique credits required, students must distribute the remaining thirty-five credits as follows:

DANC 208, 308, 388—Choreography I, II, III	9
DANC 102—Rhythmic Training	2
DANC 109—Improvisation	2
DANC 365—Dance Notation	3
DANC 200—Introduction to Dance	3
DANC 171—Movement Integration	2
DANC 305—Principles of Teaching	3
DANC 483—Dance History II	3
DANC 370—Kinesiology for Dancers	4
DANC 210—Dance Production	3
DANC 485—Seminar in Dance	3

A grade of C or higher must be attained in all dance courses.

New, re-entering and transfer students are expected to contact the department following admission to the university for instructions regarding advising and registration procedures. Although entrance auditions are not required, some previous dance experience is highly desirable.

Dance Concentration

The Department of Dance offers a Concentration in Dance of 22-24 credits. Students take 14-15 hours of specified core courses and 8-9 hours of courses in an emphasis of the student's choice.

Course Code: DANC

DECISION AND INFORMATION SCIENCES

For information, consult the College of Business and Management entry.

ECONOMICS (ECON)

College of Behavioral and Social Science

Undergraduate Studies: 3105 Tydings, 405-3505
Undergraduate Advisor: 3127A Tydings, 405-3503

Professor and Chair: Straszheim
Professors: Aaron, Abraham, Almon, Ausubel, Baily, Betancourt, Brechling, Clague, Cropper, Dardis, Dorsey, Drazen, Haltiwanger, Hulten, Kelejian, Montgomery, Mueller, Murrell, Oates, Olson, Panagariya, Prucha, Schelling* (Public Affairs)
Associate Professors: Bennett, Coughlin, Knight, Meyer, Wallis, Weinstein
Assistant Professors: Anderson, Dellas, Evans, Haliassos, Hoff, Lyon, Sakellaris, Sen, Swamy, Williams* (Afro-American Studies)
Emeriti: Bergmann, Cumberland, O'Connell, Ulmer

*Joint appointment with unit indicated

The Major

Economics is the study of the production, pricing, and distribution of goods and services within societies. Economists study such problems as inflation, unemployment, technical change, poverty, environmental quality, and foreign trade. Economists also apply economics to such diverse areas as crime, sexual roles, health care and the elderly, discrimination, urban development, and developing nation problems.

Two characteristics of modern economics receive special attention in the Department's program. Government policies have profound effects on how our economic system performs. Government expenditures, regulations, and taxation either directly or indirectly affect both households and firms. Second, there is a growing interdependency among economies throughout the world. Extensive worldwide markets exist in which goods and services are traded, and capital and investments move across national boundaries. Economic events in one nation are often quickly transmitted to other nations.

Economists study these phenomena through the development of systematic principles and analytic models which describe how economic agents behave and interact. These models are the subject of empirical testing, often using computers and extensive data sets.

The interests of the faculty, as reflected in the course offerings, are both theoretical and applied. As a large diverse department, the Economics Department offers courses in all of the major fields of economic study. The Department's program stresses the application of economic theory and econometrics to current problems in a large number of fields. Many courses in the Department's program analyze the role of the government and public policies on the economy.

The program is designed to serve both majors and non-majors. The Department offers a wide variety of upper-level courses on particular economic issues which can be taken after one or two semesters of basic principles. These courses can be especially useful for those planning

careers in law, business, or the public sector. The program for majors is designed to serve those who will seek employment immediately after college as well as those who will pursue graduate study.

Economics majors have a wide variety of career options in both the private and public sectors. These include careers in state and local government, federal and international agencies, business, finance and banking, journalism, teaching, politics and law. Many economics majors pursue graduate work in economics or another social science, law,business or public administration (public policy, health, urban and regional planning, education, and industrial relations).

Requirements for Major

In addition to the University's general education (CORE) requirements, the requirements for the Economics major are as follows:

(1) **Economics (and Mathematics) Courses (36 hours)**
Economics majors must earn 33 credit hours in Economics, and 3 credit hours in Mathematics (MATH 220 or 140), with a grade of C or better in each course.

All majors must complete 12 hours of core requirements with a satisfactory GPA. The core requirements include ECON 201, ECON 203, ECON 305 (formerly ECON 401) and ECON 306 (formerly ECON 403). A satisfactory GPA must satisfy each of the following: a grade of C or better in each course; a 2.5 GPA in the four courses comprising the core requirements; and a 2.5 GPA in ECON 305 and 306.

Students must also complete twenty-one hours in upper level Economics courses:
a) three hours in statistics; ECON 321 (formerly ECON 421) or BMGT 230 or BMGT 231 or STAT 400;
b) three hours in economic history or comparative systems; ECON 310, ECON 311, ECON 315 (formerly ECON 415), ECON 380, or ECON 410;
c) nine hours in courses with at least one semester of intermediate theory or economic statistics (ECON 321) as a prerequisite. The following courses presently have this prerequisite: ECON 402, ECON 407, ECON 416, ECON 417, ECON 422, ECON 423, ECON 425, ECON 431, ECON 441, ECON 454, ECON 456, ECON 460, ECON 470, and ECON 476;
d) six other hours in upper division Economics.

(2) **Additional Supporting Courses (15 hours)**

Students must earn 15 hours of credit in upper division courses in addition to the 36 hours of Economics (and Mathematics) courses listed above and the University's CORE requirements. Upper division courses include all courses with a 300 number and above. Additional mathematics courses beyond the required mathematics course (MATH 220 or 140), and computer programming courses at the 200 level and above may be counted as fulfilling the Additional Support Course Requirement. Additional economics courses may be included among the 15 hours of supporting courses.

All courses meeting this Additional Support Course requirement must be completed with a grade of C or better and may not be taken pass-fail.

Study Sequences and Plans of Study

Economics is an analytic discipline, building on a core of principles, analytic models, and statistical techniques. Students must begin with a foundation in mathematics and economic principles (ECON 201 and ECON 203). A more advanced, analytic treatment of economics is presented in intermediate theory (ECON 305 and ECON 306), which is a necessary background for in-depth study by economics majors.

The department urges that the student take ECON 201 and 203 and MATH 220 as soon as possible. Honors versions of ECON 201 and 203 are offered for students seeking a more rigorous analysis of principles, departmental honors candidates, and those intending to attend graduate school. Admission is granted by the Office of Undergraduate Advising or the University Honors Program.

Courses in applied areas at the 300 level may be taken at any point after principles. However, majors will benefit by completing ECON 305, ECON 306, and ECON 321 or its equivalent immediately upon completion of principles. While most students take ECON 305 and 306 in sequence, they may be taken concurrently. Courses at the 400 level are generally more demanding, particularly those courses with intermediate theory as a prerequisite.

Empirical research and the use of computers are becoming increasingly important in economics. All students are well advised to include as many statistics, econometrics, and computer programming courses in their curriculum as possible.

Those students planning to pursue graduate study in economics must begin to prepare themselves analytically for graduate work by focusing on theory, statistics, and mathematics in their undergraduate curriculum. These students should consider the advanced theory courses (ECON 407 and ECON 417) and the econometrics sequence (ECON 422 and ECON 423). Mastery of the calculus and linear algebra is essential for success in many of the top graduate schools. Students should consider MATH 140, MATH 141, MATH 240 (or MATH 400), MATH 241 and MATH 246 as very useful preparation.

Advising

The department has academic advisors providing advising on a walk-in basis in the Office of Undergraduate Advising, 3127A Tydings.

Honors

The Economics Honors Program provides economics majors with the opportunity for advanced study in a seminar format, with faculty supervision of seminar papers and an honors thesis. The Honors Program is designed for students intending to attend graduate school or those seeking an in-depth study of economic theory and its application to economic problems.

The Honors Program is a twelve-hour sequence, culminating in the completion of a senior thesis. Students must complete ECON 396 (Honors Workshop) and ECON 397 (Honors Thesis) in their senior year, as well as two of the following five courses: ECON 407, 417, 422, 423, 425. Students must complete these twelve hours with a GPA of 3.5. ECON 396 is offered only in the fall term.

To be eligible for admission, a student must have completed fifteen hours of economics with a GPA of 3.25. Interested students should meet with the Director of Undergraduate Studies at the earliest possible date to review their curriculum plans and to apply for admission to the program.

Awards

The Dudley and Louisa Dillard Prize, currently $500, is awarded to the outstanding Economics junior and senior with a broad liberal arts program.

Student Organizations

Omicron Delta Epsilon, the economics honorary society, meets regularly to discuss economics and other graduate schools, employment opportunities, and recent economic trends. Please see the Undergraduate Economics Secretary, 4115A Tydings, for membership information.

Course Code: ECON

EDUCATION POLICY, PLANNING, AND ADMINISTRATION (EDPA)

College of Education

3112 Benjamin Building, 405-3574

Acting Chair: Schmidtlein
Professors: Andrews, Berdahl, Berman, Birnbaum, Chait, Clague, Dudley, Finkelstein, McLoone, Mate, Selden, Stephens
Associate Professors: Agre, Goldman, Herschbach, Hopkins, Huden, Hultgren, Lindsay, Noll, Schmidtlein, Splaine
Assistant Professor: Heid
Affiliate Assistant Professors: Edelstein, Lawrence
Adjunct Professors: Farmer, Heynemann, Hickey, Hogan
Adjunct Associate Professor: Hrabowski

Adjunct Assistant Professor: McKay
Emeriti: Anderson, Newell, McClure

The Department of Education Policy, Planning and Administration offers several courses at the undergraduate level. These include Foundations of Education (EDPA 301). In addition, University Studies Program (distributive studies) requirements may be met by taking Education in Contemporary American Society (EDPA 201) or Historical and Philosophical Perspectives on Education (EDPA 210). University Studies Program (advanced studies) requirements may be met by taking Technology, Social Change, and Education (EDPA 401), or Future of the Human Community (EDPA 400). EDPA 210 is one of the CORE Humanities requirements.

Master's and doctoral programs are offered in school administration and supervision, curriculum theory and development, foundations of education and education policy, and higher education administration.

Course Code: EDPA

ELECTRICAL ENGINEERING (ENEE)

College of Engineering

2429 A.V. Williams Building, 405-3683

Chair: Destler†
Associate Chairs: Davis (Facilities and Services); Emad (Graduate Program); Pugsley (Undergraduate Program)
Professors: Antonsen, Baras, Barbe, Blankenship, Chellappa, Dagenais, Davis, Davisson, DeClaris, Destler, Emad, Ephremides, Frey, Gligor, Goldhar, Granatstein, Harger, Hochuli, Ja'Ja', Krisnaprasad, Lee, Levine, Ligomenides, Makowski, Mayergoyz, Newcomb, Ott, Peckerar (part-time), Rabin, Reiser, Rhee, Striffler, Taylor, Tits, Venkatesan, Vishkin, Zaki
Associate Professors: Abed, Farvardin, Geraniotis, Ho, Iliadis, Nakajima, Narayan, Oruc, Pugsley, Shamma, Shayman, Silio, Tretter
Assistant Professors: Dayawansa, Fuja, Goldsman, Greenberg, Ioannou, Lawson, Liu, Milor, Menezes, Milchberg, Papamarcou, Yang
Emeritus: Lin
†Distinguished Scholar-Teacher

The Major

The Electrical Engineering major is intended to prepare students to function as effective citizens and engineers in an increasingly technological world as well as in science and engineering subjects. Depth as well as breadth is required in the humanities and social sciences to understand the economic, ecologic, and human factors involved in reaching the best solutions to today's problems.
The basic foundation in mathematical, physical, and engineering sciences is established in the first two years of the curriculum. A core of required Electrical Engineering courses is followed by a flexible structure of electives that allows either breadth or specialization. Appropriate choices of electives can prepare an Electrical Engineering major for a career as a practicing engineer and/or for graduate study.

Areas stressed in the major include communication systems, computer systems, control systems, engineering electromagnetics, microelectronics, and power systems. Within these areas are courses in such topics as solid state electronics, integrated circuits, lasers, communications engineering, computer design, power engineering, digital signal processing, antenna design, and many others. Project courses allow undergraduate students to undertake independent study under the guidance of a faculty member in an area of mutual interest.

Requirements for Major

Requirements for the Electrical Engineering major include thorough preparation in mathematics, physics, chemistry, and engineering science. Elective courses must include both Electrical Engineering courses and technical courses outside the department. A sample program for the portion of the program following the common freshman year in Engineering is shown below. (See College of Engineering section for suggested Freshman Year program.)

	Semester I	Semester II
Sophomore Year		
CORE	3	3
Math 246—Differential Equations	3	
Math 241—Analysis III		4
PHYS 262, 263—General Physics	4	4
ENES 240—Engineering Computation	3	
ENES 221—Dynamics	3	
ENEE 204—Basic Circuit Theory		3
ENEE 244—Digital Logic Design		3
Total	16	17
Junior Year		
Math xxx (Elect. Advanced Math[2])	3	
ENEE 302—Analog Electronics	3	
ENEE 305—Fundamental Laboratory	2	
ENEE 312—Digital Electronics		3
ENEE 322—Signal & System Theory	3	
ENEE 324—Engineering Probability		3
ENEE 350—Computer Organization		3
ENEE 380—Electromagnetic Theory	3	
ENEE 381—Elect. Wave Propagation		3
ENEE xxx—Advanced Elective Lab.[2]		2
CORE	3	3
Total	17	17
Senior Year		
Electives[2]	6	12
Advanced Elective Lab[2]	2	
CORE	6	3
Total	14	15

[1]See details of CORE in Chapter 5.
[2]The twenty-five credits of electives must satisfy the following conditions:
(1) 13 credits must be 400-level ENEE courses, including at least four credits of advanced laboratory courses.
(2) 12 credits must be non-electrical engineering (mathematics, physics, other fields of engineering, etc.) and must be selected from the Electrical Engineering Department's approved list; at least three credits of these nine must be a 400-level MATH course from the departmental list.

Admission

Admission requirements are the same as those of other departments (see College of Engineering section on Entrance Requirements).

Advising

Nearly all of the faculty in Electrical Engineering function as undergraduate advisors. Departmental approval is required for registration in all upper-division courses in the major. The department's Undergraduate Office (2429 A.V. Williams Building, 405-3685 is the contact point for undergraduate advising questions.

Financial Assistance

Several corporate scholarships are administered through the department. Information and scholarship applications are available from either the Electrical Engineering Undergraduate Office, 2429 A.V. Williams Building, 405-3685, or the College of Engineering Student Affairs Office, 1131 Engineering Classroom Building, 405-3860

Honors and Awards

The Electrical Engineering department annually gives a variety of academic performance and service awards. Information on criteria and eligibility is available from the department's Undergraduate Office. Majors in Electrical Engineering participate in the Engineering Honors Program. See the College of Engineering entry in this catalog for further information.

Department Honors Program

The Electrical Engineering Honors Program is intended to provide a more challenging and rewarding undergraduate experience for the best students pursuing baccalaureate degrees in Electrical Engineering. Honors sections are offered in almost all technical courses in the freshmen, sophomore, and junior years, and a capstone honors design project is taken during the senior year. Students completing the program with at least a 3.0 average on a 4.0 scale will have their participation in the program indicated on their B.S. diploma. For further information contact Dr. James Pugsley in the Electrical Engineering Undergraduate Office (AVW 2429).

Student Organizations

There is an active Student Chapter of the Institute of Electrical and Electronics Engineers (IEEE). Information and membership applications are available in the Electrical Engineering undergraduate lounge, 0107 Engineering Classroom Building. Equally active is the chapter of Eta Kappa Nu, the nationwide Electrical Engineering honorary society. Information on eligibility can be obtained from the EE Undergraduate lounge, from the departmental Undergraduate Office, or from the College Student Affairs Office.

Course Code: ENEE

ENGINEERING, BACHELOR OF SCIENCE DEGREE IN

College of Engineering

1131 Engineering Classroom Building, 405-3855

General Regulations for the B.S. Engineering Degree: All undergraduate students in engineering will select their major field sponsoring department at the beginning of their second year regardless of whether they plan to proceed to a designated or an undesignated degree. A student wishing to elect the undesignated degree program may do so at any time following the completion of the sophomore year, or a minimum of fifty earned credits towards any engineering degree, and at least one semester prior to the time the student expects to receive the baccalaureate degree. As soon as the student elects to seek an undesignated baccalaureate degree in engineering, the student's curriculum planning, guidance, and counseling will be the responsibility of the "Undesignated Degree Program Advisor" in the primary field department. At least one semester before the expected degree is to be granted, the student must file an "Application for Admission to Candidacy for the Degree of Bachelor of Science in Engineering" with the dean's office of the College of Engineering. The candidacy form must be approved by the chair of the primary field department, the primary engineering, and the secondary field advisors and the college faculty committee on "Undesignated Degree Programs." This committee has the responsibility for implementing all approved policies pertaining to this program and reviewing and acting on the candidacy forms filed by the student.

Specific university and college academic regulations apply to this undesignated degree program in the same manner as they apply to the conventional designated degree programs. For example, the academic regulations of the university apply and the college requirement of 2.0 G.P.A. in the major field during the junior and senior years applies. For the purpose of implementation of such academic rules, the credits in the primary engineering field and the credits in the secondary field are considered to count as the "major" for such academic purposes.

Options of the "B.S. Engineering" Program

The "B.S. Engineering" program is designed to serve three primary functions: (1) to prepare those students who wish to use the breadth and depth of their engineering education as preparation for entry into post-baccalaureate study in such fields as medicine, law, or business administration; (2) to provide the basic professional training for those students who wish to continue their engineering studies on the graduate level in one of the new interdisciplinary fields of engineering such as environmental engineering, bio-medical engineering, systems engineering, and many others; and finally (3) to educate those students who do not plan a normal professional career in a designated engineering field but wish to use a broad engineering education so as to be better able to serve in one or more of the many auxiliary or management positions of engineering related industries. The program is designed to give the maximum flexibility for tailoring a program to the specific future career plans of the student. To accomplish these objectives, the program has two optional paths: an engineering option and an applied science option.

The engineering option, which is ABET accredited, should be particularly attractive to those students contemplating graduate study or professional employment in the interdisciplinary engineering fields, such as environmental engineering, bio-engineering, bio-medical, systems and control engineering, and manufacturing engineering, or for preparatory entry into a variety of newer or interdisciplinary areas of graduate study. For example, a student contemplating graduate work in environmental engineering might combine chemical and civil engineering for his or her program; a student interested in systems and control engineering graduate work might combine electrical engineering with aerospace, chemical, or mechanical engineering.

The applied science option, which is not ABET accredited, should be particularly attractive to those students who do not plan to pursue a professional engineering career but wish to use the rational and developmental abilities fostered by an engineering education as a means of furthering career objectives. Graduates of the applied science option may aspire to graduate work and an ultimate career in a field of science, law, medicine, business, or a variety of other attractive opportunities which build on a combination of engineering and a field of science. Entrance requirements for law and medical schools can be met readily under the format of this program. In the applied science program, any field in the university in which the student may earn a B.S. degree is an acceptable secondary science field, thus affording the student a maximum flexibility of choice for personal career planning.

Minimum Requirements

Listed below are the minimum requirements for the B.S. Engineering degree with either an engineering option or an applied science option. The sixty-six semester credit hours required for the completion of the junior and senior years are superimposed upon the freshman and sophomore curriculum of the chosen primary field of engineering. The student, thus, does not make a decision whether to take the designated or the undesignated degree in an engineering field until the beginning of the junior year. In fact, the student can probably delay the decision until the spring term of the junior year with little or no sacrifice, thus affording ample time for decision-making. Either program may be taken on the regular four-year format or under the Maryland Plan for Cooperative Engineering Education.

Junior-Senior Requirements for the Degree of B.S.—Engineering

	Semester Hours	
Option:	Engineering	Applied Science
CORE	15	15
Mathematics Physical Sci.[2]	3	3
Engineering Sciences[1,2]	6	6
Primary Field[3,6]	24(Engr.)	18 (Engr.)
Secondary Field[2,5]	12(Engr.)	12 (Sci.)
Approved Electives[2]	6 (Tech.)	9 or 10
Sr. Research/Project[4]		3 or 2
Total	66	66

Engineering fields of concentration available under the B.S. Engineering program as primary field within either the engineering option or the applied science option are aerospace engineering, engineering materials, agricultural engineering, fire protection engineering, chemical engineering, mechanical engineering, civil engineering, nuclear engineering, and electrical engineering. All engineering fields of concentration may be used as a secondary field within the engineering option.

[1]Engineering sciences, for the purpose of this degree, are those courses in the College of Engineering prefixed by ENES or in any engineering field including the primary or secondary field of engineering concentration.
[2]A minimum of fifty percent of the coursework in the mathematics, physical sciences, engineering science and elective areas must be at the 300 or 400 course number level.
[3]All of the courses used to fulfill the fields of concentration requirements (thirty-six semester hours in the engineering option and thirty in the applied science option) must be at the 300 course number level or above. In addition, three courses with laboratory experience should be incorporated into the program.
[4]For the applied science option each student is required, unless specifically excused; and if excused, fifteen semester hours of approved electives will be required to complete satisfactorily a senior level project or research assignment relating the engineering and science fields of concentration.
[5]In the engineering option, the six semester hours of electives must be technical (math, physical sciences, or engineering sciences), but may not be in the primary or secondary fields of concentration. In the applied science option, the approved electives should be selected to strengthen the student's program consistent with career objectives. Courses in the primary or secondary fields of concentration may be used to satisfy the approved electives requirement.

[6]For the engineering option, the program must contain the proper design component, as specified by the ABET requirements. It is the responsibility of students and their advisors to ensure that the requirements are satisfied by the appropriate selection of courses in the primary and secondary fields of concentration. As part of the required design component, all students, except those choosing Nuclear Engineering as a primary field, must complete ENME 404.

ENGLISH LANGUAGE AND LITERATURE (ENGL)

College of Arts and Humanities

3101 S. Campus Surge Bldg., 405-3809

Undergraduate Advisors: 2115 SCP, 405-3825
Freshman English Office: 3119 SCP, 405-3771
Professional Writing Program: 3119 SCP, 405-3762

Chair (Acting): Hammond
Professors: Bryer, Carretta, Coletti, Coogan, Cross, Fraistat, Freedman (Emeritus), Fry, D. Hamilton, Handelman†, Holton, Hovey (Emeritus), Howard, Isaacs, Jellema (Emeritus), Kauffman, Kolker, Kornblatt, Lanser, Lawson, Lutwack (Emeritus), Miller (Emerita), Murphy (Emeritus), Myers (Emeritus), Panichas (Emeritus), Pearson, W. Peterson, Plumly, Russell, Salamanca (Emeritus), Trousdale, Turner, Vitzthum, Washington, Whittemore (Emeritus), Winton, Wyatt
Associate Professors: Auchard, Auerbach, Barry, Caramello, Cartwright, Cate, Coleman, Collier, Dobin, Donawerth, Fahnestock, Flieger, Grossman, G. Hamilton, Hammond, Herman, Kleine, Leinwand, Leonardi, Levine, Loizeaux, Mack, Marcuse, Norman, C. Peterson, Robinson, Smith, Weber (Emeritus)
Assistant Professors: Levin, Lindemann, Logan, McDowell, Moser, Ray, Rutherford, Schilb, Upton, Van Egmond, Wang
Instructors: Miller, Ryan, Scheltema, Shapiro, Terchek
†Distinguished Scholar-Teacher

The Major

The English major was designed with three purposes in mind: 1) to give students a sense of the variety of literature written in English over the centuries; 2) to help English majors develop their abilities to think carefully and to express themselves well; and 3) to introduce students to the debates about literature that shape our intellectual lives. An English major is good professional preparation for a career in the law, government, journalism, business, communication, teaching, or any field that requires strong analytical and communication skills.

Requirements for Major

The English major requires 39 credits in English beyond the two required University writing courses. It also requires an additional 12 supporting credits taken in another department such as History, Philosophy or one of the foreign languages, chosen in consultation with the student's English Department advisor.

The English major has three parts. The Core Requirements assure that students read widely and become aware of the questions an inquiring reader might ask of a text. The Concentration offers students the opportunity to read more deeply in an area of special interest. The Electives allow students to explore other areas of interest.

Core Requirements (18 credits)
All to be taken at the 300- or 400-level

1. English 301 Critical Methods in the Study of Literature.
   Majors must take 301 before they take other 300- or 400- level English courses. We recommend it be taken during the sophomore year.
2. A course in British Literature emphasizing literature written before 1670.
3. A second course in British Literature emphasizing literature before 1900.
4. A course in American Literature.
5. A course in the literature of a) African-Americans, b) peoples of color, or c) women.
6. A senior seminar, to be taken in the senior year.

Concentrations (12 credits)
(Four courses beyond the Core Requirements)

Students choose one of the following:
1. British and American Literature
2. American Literature
3. Language, Writing, and Rhetoric
4. Creative Writing
5. Literature of the African Diaspora
6. Mythology and Folklore
7. Literature by Women
8. International Literature (special permission required)
9. Cultural Studies (special permission required)
10. Student Specified Concentration (special permission required)

Electives (9 credits)

Chosen in consultation with an advisor.

Only two 200-level courses may be counted toward the major. No course with a grade less than C may be used to satisfy the major or supporting area requirements. For further details on requirements, contact the English Department's Office of Undergraduate Studies (2115 SCP, 405-3825).

English Education

In conjunction with the College of Education, the English Department offers a special 83-credit program for students wishing to major in English and earn a certificate to teach English on the secondary level. For a list of requirements, contact the Office of Undergraduate Studies (2115 SCP, 405-3825).

Honors

The English Department offers an extensive Honors Program, primarily for majors but open to others with the approval of the departmental Honors Committee. Interested students should ask for detailed information from an English Department advisor as early as possible in their college careers.

The Writing Center

The Writing Center, 2105 SCP, 405-3785, provides free tutorial assistance daily to students enrolled in English courses. English 101 students generally work with student tutors. English 391/2/3/4/5 students work with tutors who are retired professionals. In addition to helping students with writing assignments, the center prepares ENGL 101 students for the English Proficiency Examination. Appointments are recommended, but walk-ins are welcome based on availability of tutors.

Course Code: ENGL

ENTOMOLOGY (ENTM)

College of Life Sciences

1302 Symons Hall, 405-3911

Professor and Chair: Steinhauer
Professors: Barbosa, Bickley (Emeritus), Bottrell, Davidson, Denno, Harrison (Emeritus), Jones (Emeritus), Menzer (Emeritus), Messersmith (Emeritus), Raupp, Wood (Emeritus)
Associate Professors: Armstrong, Dively, Hellman, Lamp, Linduska, Ma, Mitter, Nelson, Regier, Scott
Assistant Professor: O'Brochta, Roderick, Thorne

The Major

This specialization area prepares students for careers or graduate work in any of the specialized areas of entomology. Professional entomologists are engaged in fundamental and applied research in university, government, and private laboratories; regulatory and control activities with Federal and State agencies; commercial pest control and pest manage-

ment services; sales and development programs with chemical companies, and other commercial organizations; consulting, extension work; and teaching.

Advising is mandatory. Students should work closely with their advisors in choosing electives.

Requirements for Specialization

See Biological Sciences in this catalog and Entomology advisor for specific program requirements.

Course Code: ENTM

FAMILY STUDIES (FMST)

College of Health and Human Performance

1204 Marie Mount Hall, 405-3672

Professor and Chair: Billingsley
Professors: Epstein, Gaylin, Koblinsky
Associate Professors: Anderson, Leslie, Myricks, Rubin, Wallen
Assistant Professors: Mokhtari, Randolph
Lecturer: Werlinich
Instructors: Millstein, Zeiger

The Major

The major in Family Studies emphasizes an understanding of the family as the primary social institution linking individuals to their world. The program has three interrelated foci 1) the family as a unique and dynamic social unit, 2) the development and functioning of the individuals within the family, and 3) the relationship of the family to its larger socio-cultural, historical and economic context. The course of study stresses a working knowledge of the development of individuals through- out the family life span, interpersonal relations, and resource use. Education about family life issues such as family life enrichment, intergenerational relations, family crises, legal problems, and changing family forms and lifestyles, will be studied. Intervention strategies alleviating and preventing family problems and an understanding of the reciprocal relationships between families and the policies, practices, and management of institutions and organizations will be offered. The curriculum prepares students to be educators and have careers in direct service roles and mid-level management and policy positions emphasizing family. Opportunities exist in public, private and non-profit agencies and institutions working with family members, entire family units or family issues. Graduates also will be prepared for graduate study in the family sciences, human services administration, and other social and behavioral science disciplines and professions.

Curriculum

(a) Major subject area: A grade of C or better is required in these courses.

FMST 302—Research Methods (3)
FMST 330—Family Theories and Patterns (3)
FMST 332—Children in Families (3)
FMST 347—Internship and Analysis (3)
FMST 381—Poverty, Affluence, and Families (3)
FMST 383—Delivery of Human Services to Families (3)
FMST 432—Intergenerational Aspects of Family Living (3)
FMST 487—Legal Aspects of Family Problems (3)

(b) Six additional departmental credits must be selected from any other FMST courses, with the exception of independent study (FMST 399) and field work (FMST 386, FMST 387). Must receive a grade of C or better.

(c) Additional Core Courses. Required of all majors. All students must earn a grade of C or better in all courses applied toward satisfaction of the major.

EDMS 451—Introduction to Educational Statistics (3) OR
STAT 100—Elementary Statistics and Probability (3)
SOCY 100—Introduction to Sociology (3) OR
SOCY 105—Introduction to Contemporary Social Problems
PSYC 100—Introduction to Psychology (3)
ECON 201—Principles of Economics I (3) AND ECON 203—Principles of Economics II (3) OR ECON 205—Fundamentals of Economics (3)
SPCH 100—Foundations of Speech Communication (3) OR SPCH 107— Speech Communication: Principles and Practices (3) OR SPCH 125—Introduction to Interpersonal Communication (3)

Course Code: FMST

FINANCE

For information, consult the College of Business and Management entry.

FIRE PROTECTION ENGINEERING (ENFP)

College of Engineering

0151 Engineering Classroom Building, 405-3992

Professor and Chair: Bryan
Professors: Brannigan, Quintiere, Spivak
Assistant Professors: Milke, Mowrer
Lecturer (part-time): Levin

The Major

The fire protection engineering major is concerned with the scientific and technical problems of preventing loss of life and property from fire, explosion, and related hazards, and of evaluating and eliminating hazardous conditions.

The fundamental principles of fire protection engineering are relatively well-defined and the application of these principles to a modern industrialized society has become a specialized activity. Control of the hazards in manufacturing processes calls for an understanding not only of measures for protection, but of the processes themselves. Often the most effective solution to the problem of safeguarding a hazardous operation lies in the modification of special extinguishing equipment. The fire protection engineer must be prepared to decide in any given case what is the best and most economical solution of the fire prevention problem. His or her recommendations are often based not only on sound principles of fire protection but on a thorough understanding of the special problems of the individual property.

Modern fire protection utilizes a wide variety of mechanical and electrical equipment which the student must understand in principle before he or she can apply them to special problems. The fire protection curriculum emphasizes the scientific, technical, and humanitarian aspects of fire protection engineering and the development of the individual student.

The problems and challenges which confront the fire protection engineer include the reduction and control of fire hazards due to processes subject to fire or explosion in respect to design, installation and handling, involving both physical and human factors; the use of buildings and transportation facilities to restrict the spread of fire and to facilitate the escape of occupants in case of fire; the design, installation and maintenance of fire detection and extinguishing devices and systems; and the organization and education of persons for fire prevention and fire protection.

Requirements for Major

	Semester I	Semester II
Sophomore Year		
CORE Program Requirements	3	3
Math 240—Linear Algebra OR Math 241—Calculus	4	
Math 246—Differential Equations for Scientists and Engineers		3
PHYS 262, 263—General Physics	4	4
ENES 221—Dynamics		3
ENES 220—Mechanics of Materials	4	
ENFP 251—Introduction to Fire Protection Engineering	3	
ENFP 290—Fire Protection Fluids		3
Total	18	16
Junior Year		
CORE Program Requirements	3	3
CMSC 104—Fortran Programming (4) OR ENES 240—Engineering Computation (3)	3-4	

ENME 320—Thermodynamics OR		
ENCH 300—Chemical Process Thermodynamics		3
ENCE 300—Fundamentals of Engineering Materials OR		
ENME 310—Mechanics of Deformable Solids		3
ENCE 330—Fluid Mechanics	3	
ENFP 310—Fire Protection Systems Design I	3	
ENFP 315—Fire Protection Systems Design II		3
ENFP 320—Pyrometrics of Materials	3	
ENFP 312 Heat Transfer Applications in Fire Protection		3
Approved Electives	2	2
Total	17-18	17
Senior Year		
CORE Program Requirements	3	6
ENNU 310—Environmental Aspects of Nuclear Engineering OR		
ENEE 300—Principles of Electrical Engineering	3	
ENFP 421—Functional and Life Safety Analysis	3	
ENFP 415—Fire Dynamics	3	
ENFP 411—Fire Protection Hazard Analysis		3
ENFP 416—Problem Synthesis and Design		3
Technical Electives*	3	3
Total	15	15

Minimum Degree Credits: 120 credits and fulfillment of all department, college, and University requirements.
*Three credits of technical electives must be in ENFP.

Admission

Admission requirements are identical to those set by the College of Engineering (see College of Engineering section on Entrance Requirements).

Advising

Mandatory advising by Department faculty is required of all students every semester. Students schedule their advising appointments in the Department Office, 0151 Engineering Classroom Building, 405-3992.

Fieldwork and Internship Opportunities

Part-time and summer professional experience opportunities and paid internship information is available in the Department Office, 0151 Engineering Classroom Building. Coordinator: J.L. Bryan, 405-3992.

Financial Assistance

Scholarships and grants are available to students in the Department from organizational and corporate sponsors. Information is available on eligibility, financial terms and retention criteria in the Department Office, 0151 Engineering Classroom Building.

Honors and Awards

Academic achievement awards are sponsored by the Department, and the student professional-honor societies. These awards are presented at the annual College of Engineering Honors Convocation. Eligibility criteria for these awards are available in the Department Office, 0151 Engineering Classroom Building. Qualified students in the department are eligible for participation in the College of Engineering honors program.

Student Organizations

The department honor society, Salamander, is open to academically eligible junior and senior students. The University of Maryland student chapter of the Society of Fire Protection Engineers is the professional society for all interested students in the department. Information on both organizations may be obtained from current members in the student lounge, 1123 Engineering Laboratory Building, 405-3999.

Course code: ENFP

FOOD SCIENCE PROGRAM (FDSC)

College of Agriculture

2113 Animal Science Center, 405-1377

Professor and Coordinator: Westhoff* (Animal Sciences)
Professors: Bean, Heath, Johnson, Soares, Solomos, Vijay, Wheaton, Wiley
Professors Emeritus: Cook, Keeney, King, Mattick, Twigg
Associate Professors: Chai, Doerr, Schlimme, Shehata, Stewart, Wabeck

The Major

Food Science is concerned with the application of the fundamental principles of the physical, biological and behavioral sciences and engineering to better understand the complex and heterogeneous materials recognized as food. The contemporary food industry is highly dependent on this accumulating multidisciplinary body of knowledge and especially on the people who are educated to apply it, e.g., the food scientists or food technologists, terms that are used interchangeably.

Specialization is offered in the areas of flavor and food chemistry, food microbiology, food processing technology including freezing, thermal and aseptic processing, quality assurance, and the food commodity areas of fruits and vegetables, milk and dairy products, poultry and poultry products, red meats and seafood products.

Requirements for Major

	Credit Hours
CORE Program Requirements*	40
College Requirements:	
ENGL 101—Introduction to Writing	3
CHEM 103—General Chemistry I	4
MICB 200—General Microbiology	4
MATH 115—Precalculus	3
BIOL 105—Principles of Biology I	3
Curriculum Requirements:	
ENGL 393—Technical Writing	3
ENAG 414—Mechanics of Food Processing	4
CHEM 104 or CHEM 233	4
CHEM 113—General Chemistry II	4
FDSC 111—Contemporary Food Industry and Consumerism	3
FDSC 398—Seminar	1
FDSC 412, 413—Principles of Food Processing I, II	3,3
FDSC 421—Food Chemistry	3
FDSC 422—Food Product Research and Development	3
FDSC 423—Food Chemistry Laboratory	2
FDSC 430—Food Microbiology	2
FDSC 431—Food Quality Control	4
FDSC 434—Food Microbiology Laboratory	2
Two of the following: FDSC 442, 451, 461, 471, 482—Horticulture, Dairy, Poultry, Meat and Seafood Products Processing	3,3
NUTR 100—Elements of Nutrition	3
BCHM 261—Elements of Biochemistry	3
PHYS 121—Fundamentals of Physics	4
Electives	19

*Includes 13 required credits listed.

Advising

Advisement is mandatory. The Food Science Undergraduate advisor is Dr. D.V. Schlimme, 1122B Holzapfel Hall, 405-4347.

Fieldwork and Internship

Fieldwork and internship opportunities are available with such organizations as McCormick and Co., National Food Processors Association, Fairfield

Farm Kitchens, the Food and Drug Administration, Highs Ice Cream Corp., and Strasburger and Siegel, Inc. For information, contact Dr. D.V. Schlimme, 1122B Holzapfel Hall, 405-4347.

Honors and Awards

The Food Science Department offers opportunities for scholarships and achievement awards such as the Institute of Food Technologists and Washington, D.C. Section IFT, Maryland and D.C. Dairy Technology, and C.W. England scholarships, and the Forbes Chocolate Leadership Award.

Student Organizations

Student Association of Food Engineering, Science and Technology; Dairy Products Judging Team.

Course Code: FDSC

FRENCH AND ITALIAN LANGUAGES AND LITERATURES (FREN)

College of Arts and Humanities

3106C Jimenez Hall, 405-4024

Professor and Chair: Tarica
Professors: Condé, Fink, MacBain, Therrien
Associate Professors: Black, Brami, Falvo, Hage, Joseph, Mossman, C. Russell, Verdaguer
Assistant Professor: Kinginger
Lecturers: Amodeo, Barrabini, Bondurant, C.P. Russell
Affiliate Lecturer: Jacoby
Emeritus: Bingham

French is one of the world's great languages of culture, providing access to an outstanding body of literature and criticism, studies in the arts, the humanities, the social and natural sciences, and career opportunities in commerce, foreign affairs, and the academic world. The department seeks to provide an atmosphere conducive to cultural awareness and intellectual growth. It hosts active student clubs and a chapter of a national honor society. It sponsors a study-abroad program (Maryland-in-Nice) and works actively with the language clusters of the Language House.

The French Major

The undergraduate major in French consists of thirty-six hours of French courses above FREN 203. Three options, all having the same core, lead to the Bachelor of Arts degree: (1) French language and literature, (2) French language and culture, and (3) French/International Business. No grade lower than C may be used toward the major. Students intending to apply for teacher certification should consult the Director of Undergraduate Advising as early as possible for proper planning.

Core required of all majors (9 credits): FREN 204, 250, 301.

Students must take language acquisition courses sequentially, i.e., 101, 102, 201, 202, etc. Once credit has been received in a higher level language acquisition or grammar course, a lower level course may not be taken for credit.

French Language and Literature Option (27 credits)

In addition to core: FREN 351, 352; 311 or 312 or 404; 401 or 405; 302 or 402; four additional 400-level courses of which three must be in literature (only one of FREN 475, 478, 479 may count towards the major). *See note below.

French Language and Culture Option (27 credits)

In addition to core: FREN 351, 352; 311 or 312 or 404; 302 or 401 or 402; 471 or 472; 473; three additional 400-level courses (only one of FREN 475, 478, 479 may count towards the major). *See note below.

French and International Business Option (27 credits)

In addition to core: FREN 302, 303, 306, 311, 312; 401 or 402; 406, 473, 474. *See note below.

*Note: Additional requirements outside French for all three options: twelve credits in supporting courses as approved by department, or at least twelve credits (six credits at 200 level and six credits at 300-400 level) in one specific area, representing a coordinated plan of study.

Honors

A student may choose to do a departmental Honors version of either the French Language and Literature Option or the French Language and Culture Option. The requirements are the same except that at least three of the upper-level courses, beginning with FREN 351, must be taken in the "H" version, and that two Honors courses be substituted at the upper-level: FREN 494H (preparation for the final comprehensive examination) and FREN 495H (Honors Thesis). For further information see the Director of the French Honors Program.

The Italian Language and Literature Major

The undergraduate major in Italian consists of 36 hours of Italian courses above ITAL 203. To satisfy the major requirements, students must take the following courses: the language sequence: ITAL 204, 211, 301, and either 302 or 311; the literature sequence: 251, 351, 352; five courses at the 400 level. No grade lower than C may be used to satisfy the major requirements. Additional requirements outside Italian: 12 credits in supporting courses as approved by the Department; or at least 12 credits (six credits at the 200 level and six credits at the 300-400 level) in one specific area, representing a coordinated plan of study.

Students must take language acquisition courses sequentially, i.e., 101, 102, 201, 202, etc. Once credit has been received in a higher level language acquisition or grammar course, a lower level course may not be taken for credit.

Romance Languages

Either French or Italian, or both, may serve as components of this major (see the entry on the Romance Language Program below).

Course Code: FREN, ITAL

GEOGRAPHY (GEOG)

College of Behavioral and Social Sciences

1113 Lefrak Hall, 405-4050

Chair: Townshend
Professors: Goward, Leatherman, Townshend, Wiedel
Associate Professors: Brodsky, Christian, Cirrincione* (Curriculum and Instruction), Groves, Kearney, Mitchell, Prince, Thompson
Assistant Professor: Dubayah
Lecturers (part-time): Broome, Eney, Ernst, Frieswyk, Olsen
Professor Emeritus: Harper
*Joint Appointment with unit indicated.
Adjunct Faculty: Cebrian, Williams

The Major

The Department of Geography offers programs of study leading to the Bachelor of Science degree. Many students find that the multiple perspectives of geography form an excellent base for a liberal arts education. The abilities to write clearly and to synthesize information and concepts are valued highly in geographical education and practice. Students of geography must master substantive knowledge either in the physical/natural sciences or in the behavioral/social sciences in addition to methodological knowledge. International interests are best pursued with complementary study in foreign languages and area studies.

The central question in geographical study is "where?" Geographers research locational questions of the natural environment, of social and economic systems, and of past human activity on the land. Students of geography must master a variety of techniques that are useful in locational analysis, including computer applications and mapping, map making or cartography, air-photo interpretation and remote sensing, field observation, statistical analysis, and mathematical modelling.

Increasingly, geographers apply their combined methodological and substantive knowledge towards the solution of society's problems. Some

graduates find geography to be an excellent background for careers in defense and intelligence, journalism, law, travel and tourism, the nonprofit sector, and business and management. Most professional career positions in geography require graduate training. Many geographers take positions in scientific research, planning, management and policy analysis for both government and private agencies.

Major Requirements Including Program Options

Within any of the specializations available in the geography major program it is possible for students to adjust their programs to fit their individual interests. The geography major totals thirty-seven semester hours. In addition to the thirty-seven semester hours, the geography major is required to take an additional fifteen semester hours of supporting coursework outside of the department. The hours can be either in one department or in an area of concentration. An area of concentration requires that a written program of courses be reviewed and placed on file by the department advisor. See Professor Cirrincione, 1125 LeFrak Hall, 405-3140. Supporting courses generally are related to the area of specialty in geography. The pass-fail option is not applicable to major or supporting courses. A minimum grade of C in each course is required for major and supporting courses.

The required courses for geography majors are as follows:

	Semester Credit Hours
Geography Core (GEOG 201, 202, 203, 211, 305, 310)	16
An additional techniques course (selected from 370, 372, 373, 380)	3
A regional course	3
Elective systematic courses	15
Total	37

The Geography Core

The following six courses form the minimum essential base on which advanced work in geography can be built:

GEOG 201—Geography of Environmental Systems	3
GEOG 202—The World in Cultural Perspective	3
GEOG 203—Economic Geography	3
GEOG 211—Geography of Environmental Systems Laboratory	1
GEOG 305—Quantitative Methods in Geography	3
GEOG 310—Research and Writing in Geography	3

The four lower division courses are to be completed prior to GEOG 310 and all other upper division courses. GEOG 201, 202, and 203 may be taken in any order and a student may register for more than one in any semester. GEOG 211 may be taken concurrent with, or after taking GEOG 201. GEOG 305 is prerequisite to GEOG 310. GEOG 310 is designed specifically as a preparation to upper level work and should be taken by the end of the junior year. Upon consultation with a department advisor, a reasonable load of other upper level work in geography may be taken concurrently with GEOG 310. Completion of GEOG 310 satisfies for geography majors only the upper level English composition requirement.

The techniques requirement may be fulfilled by taking one of the following: GEOG 370: Cartographic Principles, GEOG 372: Remote Sensing, GEOG 373: Computer Mapping, and GEOG 380: Local Field Course.

Suggested Program of Study for Geography

	Semester Credit Hours
Freshman and Sophomore Years	
GEOG 100, 110, 120, 130, 140, 150, 160, 170, 171 (1)—Introductions to Geography (Does not count toward geography majors)	3+1
GEOG 201—Geography of Environmental Systems	3
GEOG 202—The World in Cultural Perspective	3
GEOG 203—Economic Geography	3
GEOG 211—Geography of Environmental Systems Laboratory	1
CORE Program Requirements and/or electives	60
Junior Year	
GEOG 305—Quantitative Methods in Geography	3
GEOG 310—Research and Writing in Geography	3
GEOG—A regional geography course	3
GEOG—Techniques (choice)	3
GEOG—Elective	3
CORE Program Requirements and/or electives	30
Senior Year	
GEOG Courses to complete major	12
Electives	18
Total	120

Introduction to Geography

The 100-level geography courses are general education courses for persons who have had no previous contact with the discipline in high school or for persons planning to take only one course in geography. They provide general overviews of the field or in one of its major topics. Credit for these courses is not applied to the major.

Related Programs

Computer Mapping, Cartography and Spatial Analysis. Prepares students for careers in map design, compilation, and reproduction. The department offers various courses in thematic mapping, cartographic history and theory, map evaluation, map, photo, and image interpretation, computer-assisted cartography, spatial statistics, and geographic information systems. Students concentrating in cartography are not required to take GEOG 305 and are limited to nine hours of upper level systematic geography courses. Students must complete fifteen hours in cartography/geographic techniques. Supporting area courses must be taken from a list provided by the department. All math programs should be approved by a departmental advisor.

The required courses of the Cartography concentration are as follows:

	Semester Credit Hours
Geography Core (GEOG 201, 202, 203, 211, 310)	13
Elective systematic geography courses	9
Cartography/Geographic technique courses	15
Total	37

For further information students should contact a departmental advisor.

Geography Minor and Secondary Education Geography Specialization

Secondary Education majors with a concentration in geography are required to take twenty-seven hours in the content field, GEOG 201, 202, 203, 211, or another upper-level course reflecting this interest. The remaining eighteen hours of the program consist of three hours of regional geography and fifteen hours of upper-division systematic courses. For majors in elementary education and others needing a geography course for teaching certification, GEOG 100 is the required course.

Geography minors should take at least GEOG 201, 202, 203, and 211 in the geography core and 310 is recommended. As with the major, these courses should be taken before any other geography courses.

Internship Opportunities

The department offers a one-semester internship program for undergraduates (GEOG 384 and 385). The goal of the program is to enhance the intellectual growth and the career opportunities of undergraduates. The internship provides students an opportunity to expand their understanding of the field by linking the theoretical aspects of geography acquired in the classroom to the applied aspects operating in a practice situation. The internship program is open only to geography juniors and seniors. All interns must have completed the following prerequisites: GEOG 201, 202, 203, 211, 305, and 310. An application form from the undergraduate geography advisor must be submitted one semester before the internship is desired. See Professor Cirrincione, 1125 LeFrak Hall (405-4053).

Honors

For information on the geography honors program, contact the undergraduate advisor.

Student Organizations

Gamma Theta Upsilon, the geography undergraduate organization, operates a program of student-sponsored talks and field trips. Information may be obtained from Professor Dubayah, 1161 Lefrak Hall, 405-4069.

Course Code: GEOG

GEOLOGY (GEOL)

College of Computer, Mathematical and Physical Sciences

1115 Geology Building, 405-4365

Professor and Chair: Brown
Professors: Chang, Wylie
Associate Professors: Candela, McLellan, Prestegaard, Ridky, Segovia, Stifel
Assistant Professors: Krogstad, Walker

The Major

Geology is the basic science of the earth. In its broadest sense, geology concerns itself with planetary formation and modification with emphasis on the study of the planet earth through the application of the principles of physics, chemistry, biology and mathematics to the understanding of the composition, behavior and history of our planet. Geologic studies involve the earth's internal and external structure and materials, chemical and physical processes and its physical and biological history.

Geology encompasses such subjects as the development of life as evidenced by the fossil record, the mechanics of crustal movement and the associated production of earthquakes and volcanic eruptions, the evolution of the oceans and their interaction with the continents, the origin and occurrence of mineral and fuel resources and the evaluation of the human impact on the natural environment.

Geological scientists find employment in governmental, industrial, and academic establishments. In general, graduate training is expected for advancement to the most rewarding positions. Although some sectors of the geological science, such as the petroleum industry, are subject to cyclical employment conditions, most areas are enjoying a strong employment outlook. Employment potential is strong in such specialties as hydrology and groundwater, mineral resource consumption, land use planning, and virtually all areas of environmental studies. At this time, students with the Bachelor of Science, particularly those with supportive training in statistics and computer science, can find challenging employment.

The Geology program includes a broad range of undergraduate courses to accommodate both geology majors and students interested in selected aspects of the science of the earth. Each undergraduate completes an individual research project under the direction of a faculty member.

Requirements for Major

The geology curriculum is designed to meet the requirements of graduate school or government or industrial employment. However, students may select elective courses that are designed for their particular interest, rather than for the broad needs of the professional career. Five areas of emphasis include: Advanced Study for Graduate School, Energy and Mineral Resources, Mineral and Materials, Environment and Engineering Geology, and Earth Science Education. These areas are used by the undergraduate advisor to help students plan career directions which fit their interests, abilities, and the present and predicted job market.

All required geology courses must be completed with a grade of C or better. An average of C is required in the supporting courses. Courses required for the B.S. in geology are listed below. Some courses require field trips for which students are expected to pay for room (if required), board, and part of the transportation costs. Field camp is taken during the summer at institutions other than UMCP offering camps approved by the Department.

	Semester Credit Hours
CORE Program Requirements*	33
DEPARTMENTAL REQUIREMENTS	
GEOL 100—Physical Geology	3
GEOL 110—Physical Geology Laboratory	1
GEOL 102—Historical Geology	4
GEOL 322—Mineralogy	4
GEOL 331—Invertebrate Paleontology	4
GEOL 340—Geomorphology	4
GEOL 341—Structural Geology	4
GEOL 342—Sedimentation and Stratigraphy	4
GEOL 393—Research Problems in Geology (First Senior Semester)	3
GEOL 394—Research Problems in Geology (Second Senior Semester)	3
GEOL 423—Optical Mineralogy	3
GEOL 443—Petrology	4
GEOL 490—Field Camp	6
SUPPORTING REQUIREMENTS	24
CHEM 103, 113	4, 4
MATH 140, 141	4, 4
PHYS 141, 142	4, 4
Electives	16-20

*Of the normal CORE requirements (forty-three credit hours), at least ten credits are met by the major requirements in mathematics, chemistry, geology or physics (mathematics and the sciences area).

Advising

The director of the Undergraduate Program serves as the advisor for geology majors, 3115 Geology Building, 405-4078.

Honors

A Geology Honors Program is offered for students of exceptional ability and interest in Geology. Qualified majors are invited to participate by the departmental Honors Committee. The program follows the University Honors Program Track I which is the thesis option and 15 credit minimum. Students take an honors seminar course, graduate level courses and complete a six-credit senior thesis under the supervision of a faculty member.

Details are available from the Director of the Honors Program or the Departmental Office.

Honors and Awards

Bengt Svenonius Memorial Scholarship for graduating senior with the highest overall scholastic average; Fernow Memorial Faculty Field Camp Awards for geology majors to attend geology summer camp; Sigma Gamma Epsilon Award for a senior in geology for Outstanding Scholastic Achievement and service to the society; and Best Senior Research Award.

Student Organizations

Sigma Gamma Epsilon, National Honor Society for Earth Sciences and the Geology Club.

Course Code: GEOL

GERMANIC AND SLAVIC LANGUAGES AND LITERATURES (GERM)

College of Arts and Humanities

3215 Jimenez Hall, 405-4091

Professor and Chair: Pfister (Acting)
Professors: Beicken, Best, Brecht, Oster
Associate Professors: Berry, Bilik, Fagan, Fleck, Frederiksen†, Glad, Hitchcock, Strauch
Assistant Professors: Greene-Gantzberg, Lekic, Martin, Richter
Emeriti: Henn, Jones

†Distinguished Scholar-Teacher

Germanic Language and Literature

The Major

Changes in major requirements are under review. Students should check with a departmental advisor for updated information.

The undergraduate major in Germanic Language and Literature consists of thirty-six hours beyond the basic language acquisition sequence

(GERM 101-201). No course completed with a grade lower than C may be used to satisfy the major requirements. Three program options lead to the Bachelor of Arts degree: 1) German language, 2) German literature, and 3) Germanic area studies. Secondary concentration and supportive electives are encouraged in the other foreign languages, comparative literature, English, history, and philosophy. Majors intending to go on to graduate study in the discipline are urged to develop a strong secondary concentration in a further area of Germanic studies; such "internal minors" are available in German language, German literature, Scandinavian studies, and Indo-European and Germanic philology. All majors must meet with a departmental advisor at least once each semester to update their departmental files and obtain written approval of their program of study.

Requirements for Major

German Language Option
Core: 220, 301, 302, 321, and 322. Specialization: three of four German language courses (401, 403, 405, 419P); two 400-level German literature courses; two upper-level courses in any of the three areas of specialization.

German Literature Option
Core: 220, 301, 302, 321, and 322. Specialization: five 400-level German literature courses; two upper-level courses in any of the three areas of specialization.

Germanic Area Studies Option
Core: 220, 301, 302, 321, and 322. Modern Scandinavian Specialization: 369, 461; five upper-level courses in the Germanic area studies group. Medieval Scandinavian Specialization: 383, 475; five upper-level courses in the Germanic area studies group.

Also available is a German Business Option, an International Business-German Business Option, and an Engineering-German dual degree. Students should contact a departmental advisor for more information.

Students must take language acquisition courses sequentially, i.e., 101, 102, 201, 202, etc. Once credit has been received in a higher level language acquisition or grammar course, a lower level course may not be taken for credit.

Russian Language and Literature (RUSS, SLAV)

The Major

The undergraduate major in Russian Language and Literature consists of 39 hours beyond the basic language acquisition sequence (RUSS 101, 102, 201, 202). No course grade lower than C may be used to satisfy the major requirements. Two program options lead to the B.A. degree: 1) Russian Language and Literature or 2) Russian Language and Linguistics.

A common set of core courses is required of all majors, and each option must be supported by 9 hours of related course work.

Requirements for Major

1) Core (18 hours): 210 or 211, 301, 302, 303, 321, 322; 2) Supporting Courses (9 hours) - LING 200 or ENGL 301 are required, depending on specialization (LING 200 for the Russian language and linguistics option, ENGL 301 for the Russian language and literature option); 6 additional hours chosen in consultation with a departmental advisor. At least 6 of the 9 total hours must be at the 300-400 level. Specialization (12 hours): all requirements of at least one option must be fulfilled.
   a) Russian Language and Literature Option
      401, 403, 431 or 432, 433 or 434. 409, 439, or 479 may be substituted for one of 431-434 upon consent of the Undergraduate advisor.
   b) Russian Language and Linguistics Option
      479 and three additional courses chosen from among 410, 411, 412, 473, 475.

Also available is a Russian Business Option. Students should contact a departmental advisor for more information.

Students must take language acquisition courses sequentially, i.e., 101, 102, 201, 202, etc. Once credit has been received in a higher level language acquisition or grammar course, a lower level course may not be taken for credit.

Honors in German

The Department of Germanic and Slavic offers an extensive Honors Program for majors. The Honors Program affords Honor students sustained individual contact with faculty members. Honors Students are called on to work independently, to pursue a project that carries them beyond the regular undergraduate curriculum. Interested students should ask for detailed information from the Department Honors Studies Director.

Course Codes: GERM, RUSS, SLAV

GOVERNMENT AND POLITICS (GVPT)

College of Behavioral and Social Sciences

2181 LeFrak, 405-4154

Professor and Chair: Wilkenfeld
Professors: Alford†, Butterworth†, Claude†, Davidson, Dawisha, Elkin, Glass, Gurr, Harrison (Emeritus), Hathorn (Emeritus), Hsueh, Marando, McNelly (Emeritus), Oppenheimer†, Phillips, Piper, Pirages, Plischke (Emeritus), Quester, Reeves, Stone, Uslaner, Wilkenfeld
Associate Professors: Glendening, Heisler, Kaminski, McCarrick, McIntosh, Ranald, Soltan, Terchek, Williams, Wilson
Assistant Professors: Haufler, Herrnson, Lalman, Lanning, Swistak, Tismaneanu
Lecturer: Vietri

†Distinguished Scholar-Teacher

The Department of Government and Politics offers programs designed to prepare students for government service, politics, foreign assignments, teaching, and a variety of graduate programs, law schools, and for intelligent and purposeful citizenship. Satisfactory completion of requirements leads to a Bachelor of Arts degree in government and politics.

The study of politics is both an ancient discipline and a modern social science. The origin of the discipline can be traced back to the earliest times when philosophers, statesmen, and citizens studied the nature of government justice, responsibility, and the consequences of government's action. More recently, the study of politics has also emphasized scientific observations about politics. Today, the discipline reflects a broad effort to collect data about politics and governments utilizing relatively new techniques developed by all of the social sciences.

The Department of Government and Politics combines both philosophical and scientific concerns in its overall program as well as in specific courses and emphasizes such broad areas as political development, policy analysis, social justice, political economy, conflict, and human rights. These broad conceptual areas are integral components of the formal fields in the department. The formal fields are (1) American government and politics; (2) comparative government; (3) political theory; (4) international affairs; (5) public administration; (6) public law; and (7) public policy and political behavior.

Admission to the Department of Government and Politics

See the Admissions section in this catalog for general LEP admissions policies.

Freshman Admission and the 45 Credit Review. Most first-time entering freshmen will gain admission to the Department of Government and Politics directly from high school. Those freshmen who are admitted directly to Government and Politics will be subject to a performance review by the time they have completed 45 credits. To meet the provisions of the review, these students must complete: (1) a minimum cumulative GPA of 2.0; and (2) GVPT 100, GVPT 170, and ECON 201 or 205 with a minimum average of 2.6 for the three courses. Students may attempt ECON 201 or 205, but not both. Students who do not meet this standard will not be allowed to continue in the LEP and will be required to select another major.

Transfer Admission. The following requirements affect new transfer students to the university as well as on-campus students hoping to change majors to the Department. Admission of transfer students may be severely limited, and capacity is determined each year in accordance with the success of incoming freshmen.

In order to be admitted to Government and Politics, transfer students will be required to meet the following set of gateway requirements: (1) completion of GVPT 100, GVPT 170, and ECON 201 or 205 (only one, ECON 201 or 205, may be attempted) with a minimum average of 2.6; and (2) attainment of a minimum cumulative GPA for all college-level work attempted. The required GPA is set each year and may vary from year to year depending upon available space.

Appeals. Students who are unsuccessful in gaining admission to Government and Politics at the freshman or transfer level, and believe they have extenuating or special circumstances which should be considered, may appeal in writing to the Office of Undergraduate Admissions. The student may be notified in writing of the appeal decision once it is made. Contact the Counselor for Limited Enrollment programs at 301-314-8378 for further information.

Students admitted to Government and Politics as freshmen who do not pass the 45 credit review but believe they have special circumstances which should be considered may appeal directly to the Department.

Requirements for Major

Government and Politics majors must complete thirty-six semester hours of GVPT courses with a minimum grade of C in each course and may not count more than forty-two semester hours of GVPT courses in the total credits required for graduation. At least eighteen of the thirty-six credits must be in upper-level courses and all majors are required to complete GVPT 100, GVPT 170, and either GVPT 441 or GVPT 442.

In addition, all majors must complete ECON 201 or ECON 205, an approved skill option, and a secondary area of concentration in another department or approved interdisciplinary area. All courses used to satisfy these requirements must be completed with a minimum grade of C.

Honors Program

All students majoring in government may apply for admission to the GVPT Honors Program. Additional information concerning the Honors Program may be obtained at the department offices.

Internships

The department offers students a variety of internship experiences. Only nine hours of GVPT internship credit will apply to the thirty-six hours needed in the major. In no case may more than fifteen GVPT internship credits be counted toward the 120 credits needed to graduate. Internships are open only to GVPT majors with junior standing and a 3.0 GPA.

Advising

Academic advising is available daily on a walk-in basis in the Undergraduate Advising Office, 2173 LeFrak Hall.

Course Code: GVPT

HEALTH EDUCATION (HLTH)

College of Health and Human Performance

2387 HLHP Building, 405-2438

Professor and Chair: Gilbert
Associate Chair: Clearwater
Professors: Burt, Feldman, Gold, Greenberg, Leviton, Wilson
Associate Professors: Beck, Clearwater, Ettenson, Meiners, Thomas
Assistant Professors: Alexander, Desmond, Hacklander
Lecturers: Hyde, Sawyer, Scaffa, Schiraldi
Faculty Research Assistants: Baker, Chu, Scofield, Spalding, Swartzlander

The Major

Students majoring in health education have two tracks to choose from at the undergraduate level. One option is community health education, which prepares students for entry level health education positions in community settings such as voluntary health associations, worksite health promotion programs, or other health agencies. The second option is school health education which prepares students for teaching health education in schools. Students are referred to the section on the College of Education for information on teacher education application procedures. Two certificate options are also available in driver education.

Requirements for Major

Students must earn a grade of "C" or better in courses applied toward the major.

Health Education Major

The Freshman and Sophomore curricula for both the School Health Option and the Community Health Option are the same:

Freshman Year	Semester Credit Hours
CORE Requirement	6
ENGL 101—Introduction to Writing	3
MATH 110 OR MATH 102 AND 103 AND 105 OR 115: Mathematics	3
HLTH 140—Personal and Community Health	3
CHEM 111—Chemistry in Modern Life	3
BIOL 105—Principles of Biology I	4
HLTH 371—Communicating Health and Safety	3
PSYC 100—Introduction to Psychology	3
SOCY 100—Introduction to Sociology	3
HLTH 150—First Aid and Emergency Medical Services	2
Sophomore Year	
HLTH 230—Introduction to Health Behavior	6
PHIL 140—Contemporary Moral Issues	3
ZOOL 201, 202—Human Anatomy and Physiology I and II	4,4
Required Health Electives	6
PSYC 221—Social Psychology	3
HLTH 105—Science and Theory of Health	2
CORE Requirement	9

School Health

Junior Year	
ENGL 391 or 393—Advanced Composition or Technical Writing	3
HLTH 420—Methods and Materials in Health Education	3
EDHD 300S—Human Development and Learning	6
EDCI 390—Principles and Methods of Secondary Education	3
Required Health Elective	3
EDHD 340—Human Development Aspects of the Helping Relationship	3
HLTH 390—Organization and Administration of Health Programs	3
EDMS 410—Principles of Testing and Evaluation	3
EDCP 417—Group Dynamics and Leadership	3
CORE Requirement	3
Senior Year	
HLTH 340—Curriculum, Instruction and Observation	3
Required Health Electives	6
EDPA 301—Foundations of Education	3
EDCI 491—Student Teaching in Secondary Schools Health	12
CORE Requirement	6

Community Health

Junior Year	
ENGL 391 or 393—Advanced Composition or Technical Writing	3
MICB 100—Basic Microbiology	4
EDHD 340—Human Development Aspects of the Helping Relationships	3
EDMS 451—Introduction to Educational Statistics	3
HLTH 390—Organization and Administration of School Health Programs	3
HLTH 420—Methods and Materials in Health Education	3
HLTH 498R—Introduction to Community Health	3
HLTH 437—Consumer Behavior	3
HLTH 430—Health Education in the Workplace	3
EDCP 417—Group Dynamics and Leadership	3
CORE Requirement	3

Senior Year

Required Health Electives	9
HLTH 498C—Principles of Community Health	3
FMCD 483—Family and Community Service Systems	3
HLTH 489—Field Laboratory Projects and Workshops	6
HLTH 498I—Internship	3
HLTH 498J—Internship	3

Driver Education Instructors Certification Programs: Contact Dr. Harvey Clearwater, Room 0105 Cole Field House, 405-2579; or Room 2387 HLHP Building, 405-2464.

Admission

Admission requirements to the Department of Health Education are the same as those of the College of Education.

Advising

Advising is mandatory. Undergraduate Health Education Advisor: David H. Hyde, 2374 HLHP Building, 405-2523 or 405-2463.

Student Honors Organization

Eta Sigma Gamma. The Epsilon chapter was established at the University of Maryland in May 1969. This professional honorary organization for health educators was established to promote scholarship and community service for health majors at both the graduate and undergraduate levels. Students may apply after two consecutive semesters with a 2.75 cumulative average.

Course Code: HLTH

HEARING AND SPEECH SCIENCES (HESP)

College of Behavioral and Social Sciences

0100 LeFrak Hall, 405-4214

Associate Professor and Chair: Bernstein-Ratner
Professors: Yeni-Komshian, McCall
Associate Professors: Dingwall, Gordon-Salant, Ratner, Roth
Instructors: Brigham, Daniel, Hart-Lits, McCabe, Perlroth, Worthington
Lecturer: Balfour

The Major

Hearing and speech sciences is an inherently interdisciplinary field, integrating knowledge from the physical and biological sciences, medicine, psychology, linguistics, and education in order to understand human communication and its disorders. The department curriculum leads to the Bachelor of Arts degree. An undergraduate major in this field is an appropriate background for graduate training in speech-language pathology or audiology, as well as for graduate work in other disciplines requiring a knowledge of normal or disordered speech, language, or hearing. The student who wishes to work professionally as a speech-language pathologist or audiologist must complete additional graduate coursework in order to meet state licensure and national certification requirements.

The hearing and speech sciences curriculum is designed in part to provide supporting coursework for majors in related fields, so most course offerings are available to both departmental majors and non-majors. Permission of instructor may be obtained for waiver of course prerequisites for non-majors wishing to take hearing and speech courses of interest.

Requirements for Major

A student majoring in hearing and speech sciences must complete thirty semester hours of specified courses and six semester hours of electives in the department to satisfy major course requirements. No course with a grade less than C may count toward major course requirements. In addition to the thirty-six semester hours needed for a major, twelve semester hours of supporting courses in statistics and other related fields are required. For these twelve hours, a C average is required.

A guide to the major is available through the department office in room 0100, LeFrak.

Advising

Information on advising for hearing and speech sciences may be obtained by calling the department office, 405-4214

Special Opportunities: The department operates a Hearing and Speech Clinic, 405-4218, that serves the campus and surrounding area, and provides an in-house opportunity for the clinical training of students. Department facilities also include an integrated audio-visual listening and viewing laboratory, and several well-equipped research laboratories.

Student Organizations

Hearing and speech majors are invited to join the departmental branch of the National Student Speech-Language and Hearing Association (NSSLHA).

Course Code: HESP

HEBREW AND EAST ASIAN LANGUAGES AND LITERATURES (HEBR, CHIN, JAPN)

College of Arts and Humanities

2106 Jimenez Hall, 405-4239

Professor and Chair: Unger
Professors: Berlin, Ramsey
Associate Professors: Chin, Kerkham, Manekin, Sargent, Walton
Affiliate Associate Professor: Oh
Assistant Professor: Yee
Instructors: Levy, Liberman, Miura, Yaginuma

Hebrew Language and Literature

The Hebrew Program provides, both to beginners and to those with previous background, an opportunity to acquire knowledge and skills in Hebrew language, literature, culture, and thought. Elementary and Intermediate level language courses develop effective communications skills in modern Hebrew. Upper level language courses emphasize reading comprehension, vocabulary enrichment, and writing skills. More advanced students focus on the analytical study of major classical and modern Hebrew texts. In addition, courses are offered in English (no knowledge of Hebrew required) in the areas of Bible, Ancient Near East, Rabbinic thought, Jewish Philosophy, and Hebrew literature in translation.

While there is no Hebrew major, students wishing to focus on Hebrew language as a primary subject may do so through a concentration on Hebrew within the Jewish Studies major (see Jewish Studies program). A certificate is also available to students qualifying for a minor. Consult the Hebrew office for requirements.

Students must take language acquisition courses sequentially, i.e., 101, 102, 201, 202, etc. Once credit has been received in a higher level language acquisition or grammar course, a lower level course may not be taken for credit.

Hebrew may be used to meet University and College language requirements.

Honors and Awards

Several forms of recognition for those excelling in Hebrew are available: Membership in Eta Beta Rho, the Hebrew Honor Society, the Bnai Zion Award.

Students are encouraged to apply for residence in the Hebrew suite of the Language House, and are encouraged to spend some time studying at an Israeli University. The University of Maryland sponsors a semester program at Tel Aviv University. Scholarships for study in Israel are available through the Meyerhoff Center for Jewish Studies.

East Asian Languages and Literatures

The Major

A proposal to make the concentrations in Chinese and Japanese into separate degrees is currently under review. Interested students should contact the department for more information.

A student may major in East Asian languages and literatures with a concentration in Chinese or Japanese. Either concentration provides the training and cultural background needed for entering East Asia-related careers in such fields as higher education, the arts, business, government, international relations, agriculture, or media. Students may also want to consider a double major in East Asian languages and literatures and another discipline, such as business, international relations, economics or journalism.

After completing the prerequisite of one year of language (twelve credits): CHIN 101 (Elementary Chinese; six hours per week, fall), CHIN 102 (Elementary Spoken Chinese; three hours per week, spring), and CHIN 103 (Elementary Written Chinese; three hours per week, spring) or JAPN 101 (Elementary Japanese I; six hours per week, fall) and JAPN 102 (Elementary Japanese II; six hours per week, spring), students must complete thirty-six credits for the major course requirements (eighteen language, six civilization/history, twelve elective). No grade lower than C (2.0) may be used toward the major.

Students must take language acquisition courses sequentially, i.e., 101, 102, 201, 202, etc. Once credit has been received in a higher level language acquisition or grammar course, a lower level course may not be taken for credit.

Chinese Course Requirements

Language: CHIN 201, 202, 203, 204, 301, 302; Civilization/History: Option 1 : HIST 284 and 481 (or 485); Option 2 : HIST 285 and 480; four electives at the 300 level or above in Chinese language, literature, linguistics, or other East Asian subjects, subject to the approval of student's advisor. Among the four, one must be in the area of Chinese linguistics, and one in the area of Chinese literature, subject to the approval of the student's advisor.

Japanese Course Requirements

Language: JAPN 205, 206, 301, 302; Civilization/History: Option 1 : HIST 284 and 483; Option 2 : HIST 285 and 482; four electives at the 300 level or above. Among the four, one must be in the area of Japanese linguistics and one in Japanese literature, subject to the approval of the student's advisor.

Supporting Courses for Chinese or Japanese

Students are strongly urged to take additional courses in a discipline relating to their particular field of interest, such as art, history, linguistics, literary criticism, or comparative literature. The range of supporting courses can be decided upon in consultation with the student's advisor.

Special Language Courses

In addition to the more traditional courses in literature in translation, linguistics, and advanced language acquisition, courses in both Chinese and Japanese business language at the third-year level are offered. Students are also encouraged to spend at least one summer or semester in China (Taiwan or the People's Republic of China) or Japan in intensive language study under one or another of the university's exchange programs with foreign universities or at other approved centers of higher education.

Internship Program

This program allows students to gain practical experience by working in Washington/Baltimore area firms, corporations, and social service organizations that are East Asia-related, as well as in various branches of the Federal government. Students are also invited to apply for the East Asian Studies Certificate. Please check the appropriate entry for details.

Course Codes: CHIN, HEBR, JAPN

HISTORY (HIST)

College of Arts and Humanities

2115 Francis Scott Key Hall, 405-4265

Professor and Acting Chair: Foust
Professors: Belz, Berlin†, Brush†, Callcott†, Cockburn, Cole† (Emeritus), Duffy (Emeritus), Evans, Gilbert†, Gordon (Emeritus), Griffith, Harlan† (Emeritus), Henretta, Hoffman, Kaufman, Jashemski† (Emerita), Kent (Emeritus), Lampe, Merrill (Emeritus), A. Olson†, K. Olson, Price, E.B. Smith (Emeritus), Sparks (Emeritus), Spiegel, Sutherland, Warren, Wright, Yaney (Emeritus)
Associate Professors: Bedos-Rezak, Breslow, Cooperman, Darden, Eckstein, Flack, Friedel, Giffin, Grimsted, Gullickson, Harris, Holum, Majeska, Matossian, Mayo, Moss, Perinbam, Ridgway, Rozenblit, Stowasser, Sumida, Zilfi
Assistant Professors: Bradbury, Bravman, Muncy, Nicklason, Rowland, Thompson, Wetzell, Williams
Adjunct: Carr, Papenfuse

†Distinguished Scholar-Teacher

The Department of History seeks to broaden the student's cultural background through the study of history and to provide preparation for those interested in law, publishing, teaching, journalism, government service, and graduate study.

A faculty advisor assists each major in planning a curriculum to meet his or her personal interests. A "program plan," approved by the advisor, should be filed with the department as soon as possible. Students are required to meet with an assigned advisor once every semester or sign a waiver during registration.

The department sponsors a History Undergraduate Association which majors and other interested students are encouraged to join.

Requirements for Major

Minimum requirements for undergraduate history majors consist of thirty-nine hours of coursework distributed as follows: twelve hours in 100-200 level survey sources selected from at least two general geographical fields of history (United States, European, and Non-Western); fifteen hours, including HIST 309 in one major area of concentration (see below); twelve hours of history in at least two major areas other than the area of concentration. Without regard to area, fifteen hours of the thirty-nine total hours must be at the junior-senior (300-400) level. NOTE: All majors must take HIST 309.

I. Survey Courses

1. The requirement is twelve hours at the 100-200 level taken in at least two geographical fields.
2. Fields are defined as United States, European, and Non-Western history. All survey courses have been assigned to one of these fields. See department advisor.
3. In considering courses that will fulfill this requirement, students are encouraged to:
   a. select at least two courses in a sequence
   b. select at least one course before 1500 and one course after 1500.
   c. sample both regional and topical course offerings. Students will normally take one or more survey courses within their major area of concentration.

II. Major Area of Concentration

1. The requirement is fifteen hours, including HIST 309, in a major area of concentration.
2. An area consists of a selection of related topical, chronological, or regional courses. The areas are
   Topical: History & Philosophy of Science, Intellectual, Economic, Religious, Diplomatic, Women's History, African-American, Jewish, Legal, Military.
   Chronological: Early Modern Europe, Medieval Europe, Ancient World
   Regional: Latin America, Middle East, Europe, United States, East Asia, Africa, East Europe, Russia, Britain
3. The major area may be chronological, regional, or topical.
4. Students may select both lower and upper level courses.

5. A combination of chronological-topical courses or regional-topical courses is desirable.
6. The proseminar, HIST 309, should normally be taken in the major area of concentration in the senior year.

III. Twelve Hours of History in at Least Two Areas Outside the Area of Concentration
1. Students may select either lower or upper level courses.
2. Students are encouraged to consider regional diversity.
3. Students are encouraged to take at least two courses in chronological periods other than that of their major area of concentration.

IV. Supporting Courses Outside History Nine credits at the 300-400 level in appropriate supporting courses; the courses do not all have to be in the same department. The choice of courses must be approved in writing [before attempted, if possible] by the Director of Undergraduate Studies. Supporting courses should study some aspect of culture and society as taught by other disciplines in the student's area of concentration.

Grade of C or higher is required in all required history and supporting courses.

For students matriculating after December 1979, credit may not be earned from the CLEP general history exam; for students matriculating after September 1, 1981, history credit may not be earned from any CLEP exam.

History courses that meet University general education requirements (CORE) are listed in the Schedule of Classes each semester.

Honors

Students who major or minor in history may apply for admission to the History Honors Program during the second semester of their sophomore year. Those who are admitted to the program substitute discussion courses and a thesis for some lecture courses; they must defend their theses to a departmental committee. Successful candidates are awarded either honors or high honors in history.

The History Department offers pre-honors work in American history and in European history courses. Consult the Schedule of Classes for specific offerings each semester. Students in these sections meet in a discussion group instead of attending lectures. They read widely and do extensive written work on their own. Pre-honors sections are open to any student and are recommended for students in University Honors Program, subject only to the instructor's approval.

Course Code: HIST

HORTICULTURE (HORT)

College of Agriculture

Undergraduate Program: 2109B Holzapfel Hall, 405-4374

Professor and Chair: Gouin (Acting)
Professors: Ng, Oliver, Quebedeaux, Solomos, Walsh, Wiley
Professors Emeritus: Link, Scott, Shanks, Stark, Thompson, Twigg
Associate Professors: Beste, Bouwkamp, Deitzer, McClurg, Pihlak, Scarfo, Schales, Schlimme, Swartz
Adjunct Associate Professor: Courtenay, Hilsenrath, Rab, Wallace
Assistant Professors: Hamed, Hershey
Lecturers: Mityga, Nola

Horticulture students select from a broad spectrum of courses including science, humanities and art. Knowledge of basic sciences and factors affecting plant growth are applied to resolve world food and environmental needs. Humanities, environmental plants and management courses are pursued by students wishing to design functional, aesthetically pleasing living spaces.

The Department of Horticulture offers undergraduate curricula in Horticultural Production, Horticultural Science, Horticultural Education, and Landscape Design and Contracting. Each prepares students for graduate study or entry into horticultural industries. Advanced studies in the department, leading to the M.S. and Ph.D. degrees, are available to qualified students interested in research, university teaching, and/or extension education.

Forestry programs are available to University of Maryland students through the Academic Common Market at Virginia Polytechnic Institute and State University (VPI/SU), West Virginia University, and possibly other locations.

Horticulture programs are under review. Please contact the department office for the most current information.

Curriculum in Horticulture

	Semester Credit Hours
Departmental Requirements—All Options:	
AGRO 302—General Soils	4
AGRO 453—Weed Control	3
BIOL 105—Principles of Biology I	4
BOTN 212—Plant Taxonomy	4
BOTN 221—Diseases of Plants	4
BOTN 441—Plant Physiology	4
CHEM 103—General Chemistry I	4
CHEM 104—Fundamentals of Organic and Biochemistry or CHEM 233—Organic Chemistry I*	4
ENTM 252—Agricultural Insect Pests or ENTM 453—Insect Pests of Ornamental Plants**	3
HORT 398—Seminar	1
MATH 115—Precalculus	3

*Students interested in completing the Horticultural Science Option shall enroll in CHEM 233 rather than Chem 104. (Note: CHEM 113 is a prerequisite for CHEM 233.)
**Students interested in completing the Landscape Design and Contracting Option shall enroll in ENTM 453 rather than ENTM 252.

Horticultural Production Option

	Semester Credit Hours
AREC 250—Elements of Agricultural and Resources Economics or ECON 203—Principles of Economics II	3
AREC 306—Farm Management or AREC 414—Agricultural Business Management	3
HORT 201—Environmental Factors & Horticultural Crop Production	4
HORT 202—Management of Horticultural Crop Production	4
HORT 271—Plant Propagation	3
BIOL 222—Principles of Genetics	4
HORT 474—Physiology of Maturation and Storage of Horticultural Crops	3
Select two of the following:	
AGRO 310—Introduction to Turf	3
HORT 432—Greenhouse Crop Production	3
HORT 433—Technology of Fruit and Vegetable Production	4
HORT 452—Landscape Establishment and Maintenance	3
HORT 456—Nursery Crop Production	3
HORT 472—Advanced Plant Propagation	2
CORE Program requirements (over and above what is included in Departmental and Option requirements)	25-28
Electives	25-29

Horticultural Science Option

CHEM 113—General Chemistry II	4
HORT 201—Environmental Factors & Horticultural Crop Production	4
HORT 202—Management of Horticultural Crop Production	4
HORT 271—Plant Propagation	3
BIOL 222—Principles of Genetics	4
HORT 474—Physiology of Maturation and Storage of Horticultural Crops	3
MATH 220—Elementary Calculus I	3
PHYS 121—Fundamentals of Physics I	4
Select two of the following:	
AGRO 403—Crop Breeding	3
AGRO 411—Soil Fertility	3
AGRO 417—Soil Physics	3
AGRO 421—Soil Chemistry	3
BCHM 261—Elements of Biochemistry	3
BOTN 416—Plant Structure	4
BOTN 484—Plant Biochemistry	3
CORE Program Requirements (over and above what is included in Departmental and Option requirements)	31
Electives	15-16

Horticultural Education Option

AEED 302—Introduction to Agricultural Education	2
EDIT 450—Training Aids Development	3
AEED 305—Teaching Young and Adult Farmer Groups	1
AEED 311—Teaching Secondary Vocational Agriculture	3
AEED 313—Student Teaching	5
AEED 315—Student Teaching	1-4
AGRO 310—Introduction to Turf	3
EDHD 300—Human Development and Learning	6
EDPA 301—Foundations of Education	3
HORT 160—Introduction to the Art of Landscaping	3
HORT 201—Environmental Factors & Horticultural Crop Production	4
HORT 202—Management of Horticultural Crop Production	4
HORT 271—Plant Propagation	3
HORT 453—Woody Plant Materials or HORT 454—Woody Plant Materials	3
SPCH 107—Technical Speech Communication	3
CORE Program requirements (over and above what is included in Departmental and Option requirements)	27
Electives	6-9

Landscape Design and Contracting Option

AREC 250—Elements of Agricultural and Resource Economics or ECON 203—Principles of Economics II	3
AREC 306—Farm Management or AREC 414—Agricultural Business Management	3
HORT 161—Design Fundamentals	3
EDIT 160—Design Illustrating I	3
HORT 160—Introduction to the Art of Landscaping	3
HORT 260—Principles of Graphic Communication in Landscape Design	2
HORT 361—Principles of Landscape Design	3
HORT 452—Principles of Landscape Establishment and Maintenance	3
HORT 453—Woody Plant Materials	3
HORT 454—Woody Plant Materials	3
HORT 462—Planting Design	3
HORT 464—Principles of Landscape Development	3
HORT 465—Design of Landscape Structures and Materials	3
HORT 466—Advanced Landscape Design	3
HORT 467—Principles of Landscape Contracting	3
Electives	8-12

Fieldwork and Internship Opportunities

Internship experiences (HORT 386) are available to interested students. Contact Dr. F. Gouin, 405-4374.

Honors and Awards

The department sponsors several scholarship and award programs. Contact Dr. F. Gouin, 405-4374, for details.

Student Organizations

The Horticulture Club provides students the opportunity to gain horticultural experience, meet new colleagues, and participate in departmental activities. Contact club advisor, Prof. Madis Pihlak, 405-4350. Pi Alpha Xi is an honorary organization for qualified Horticulture Majors. Dr. D. Hershey, 405-4341, can provide additional information.

Course Code: HORT

HOUSING AND DESIGN (HSAD)

This program has been closed. New students are not being admitted. Current students should contact the college for advising.

College of Arts and Humanities

Requirements for Major

The degree Bachelor of Arts is conferred for the satisfactory completion, with an average of C or better, of a prescribed curriculum of 120 academic semester hour credits. Students must earn a grade of C or higher in all courses applied towards satisfaction of the requirements for the major in Interior or Advertising Design. Moreover, a course in which a grade lower than a C was earned cannot be used as a prerequisite for a course required for the major.

Please Note: The Interior and Advertising Design curricula are currently under review; students matriculating after June 1, 1990 should consult a department advisor for major requirements.

Advertising Design Curriculum
(Advertising design courses must be taken in sequence.)

	Semester Credit Hours*
CORE Program Requirements	39-40
B.A. Requirements**	15
EDIT 160—Design Illustrating I	3
DESN 101—Design Studio I	3
DESN 102—Design Studio II	3
DESN 103—Design Studio III	3
ARTH 200—Art of the Western World I**	3
DESN 204—History of Design	3
DESN 205—Drawing for Designers	3
DESN 210—Presentation Tech. Visual Communication Design	3
DESN 230—Typography I	3
DESN 237—Photography I	3
DESN 300—Computers, Design & Graphics** (or approv. sub.)	3
DESN 320—Illustration I	3
DESN 331—Advertising Design Studio I	3
DESN 360—History, Culture and Design OR DESN 362—Ideas in Design**	3
DESN 380—Prof. Practices in Visual Communication Design	3
DESN 430—Advertising Design Studio II	3
DESN 450 BA—Thesis in Advertising Design**	3
DESN Elective (DESN 386/387)	3
DESN Elective	3

Interior Design Curriculum
(Interior Design courses must be taken in sequence.)

	Semester Credit Hours
CORE Program Requirements	39-40
B.A. Requirements	15
EDIT 160—Design Illustrating I	3
DESN 101—Design Studio I	3
DESN 102—Design Studio II	3
DESN 103—Design Studio III	3
PHYS 106—Light, Perception, Photography, & Vis. Phen.**	3
PHYS 107—lab for PHYS 106**	1
ARTH 200—Art of the Western World I**	3
DESN 204—History of Design	3
DESN 212—Graphic Techniques for Interior Design	3
EDIT 241—Architectural Drawing	3
DESN 246—Materials in Interior Design	3
DESN 247—Building Technology	3
HSAD 300—Computers, Design & Graphics** (or approv. sub.)	3
DESN 342—Space Development	3
DESN 343—Interior Design Studio I	5
DESN 360—History Culture and Design	3
DESN 362—Ideas in Design**	3
DESN 444—Professional Practices in Interior Design	3
DESN 445—Interior Design II	5
DESN 446BA—Thesis in Interior Design**	6
DESN Elective (DESN 386/387)	3

*No upper level credits may be attempted without special permission until a student has earned a minimum of 56 credits.
**These credits may simultaneously satisfy University general education (CORE) requirements.
Note: More detailed information about curriculum as well as semester-by-semester sample programs are available from the department.

Course Code: DESN

HUMAN DEVELOPMENT (Institute for Child Study) (EDHD)

College of Education

3304 Benjamin Building, 405-2827

Professor and Director: Hardy
Professors: Eliot, Fox, Porges, Pressley, Seefeldt[1], Torney-Purta
Associate Professors: Bennett, Flatter, Gardner, Holloway, Huebner, Marcus, Robertson-Tchabo
Assistant Professors: Byrnes, Green, Smith, Wentzel, Wigfield
Emeriti: Bowie, Dittman, Goering, Hatfield, Morgan

[1]Distinguished Scholar-Teacher

The Department of Human Development offers: (1) undergraduate courses in human development at the 200, 300 and 400 levels; (2) graduate programs leading to the M.A., M.Ed. Ed.D and Ph.D. degrees and the A.G.S. certificate; and (3) field experiences and internships to develop competence in applying theory to practice in schools and other settings. Areas of specialization in human development include educational psychology, infancy, early childhood, adolescence, adulthood, and aging. Research in educational psychology, social, physiological, personality and cognitive areas with emphasis on the social aspects of development enhance the instructional program.

Undergraduate courses and workshops are designed for pre-service and in-service teachers as well as for students preparing to enter human services vocations. The department does not offer an undergraduate major. However, undergraduate students may elect human development courses in such areas as (1) infancy, (2) early childhood, (3) adolescence, (4) aging, and (5) educational psychology. Major purposes of undergraduate offerings in human development are (1) preparing people for vocations and programs which seek to improve the quality of human life, and (2) providing experiences which facilitate the personal growth of the individual.

Through the Institute for Child Study, the faculty provides consultant services and staff development programs for school systems, parent groups, court systems, mental health agencies, and other organizations involved with helping relationships. Undergraduate students may participate in these programs through coursework and internships. If interested, contact the Department/Institute.

Course Code: EDHD

HUMAN NUTRITION AND FOOD SYSTEMS (HNFS)

Departmental programs are under review. Please contact the department office for the most current information.

College of Agriculture

3304 Marie Mount Hall, 405-2139

Professor and Acting Chair: Moser-Veillon
Professors: Ahrens, Prather, Sims
Associate Professors: Castonguay, Jackson
Lecturers: Curtis, Norton

The department offers two areas of emphasis: dietetics and human nutrition and foods. Each program provides for competencies in several areas of work; however, each option is designed specifically for certain professional careers.

Requirements for Major

The **Dietetics** major develops an understanding and competency in food, nutrition, and management as related to problems of dietary departments and delivery of nutritional care. Nutrition education and community nutrition are included in this program. The Dietetics program is approved by the American Dietetic Association.

The **Human Nutrition and Foods** major emphasizes the physical and biological sciences in relation to nutrition and the development of laboratory skills in these areas. Students in this major frequently elect to go on to graduate or medical school.

Each of these courses of study includes a set of major subject courses offered primarily within the department, plus supporting courses taken outside the department. To graduate, students must also meet the requirements of the University (e.g., those specified in the CORE Program) and the requirements of the College of Agriculture.

Many courses in these majors are sequential, and some are offered only once per year. Contact a departmental advisor for help with scheduling.

Grades All students are required to earn a C grade or better in courses applied toward satisfaction of the major. This includes all required courses with a prefix of FOOD, NUTR, and FSAD as well as certain required courses in supporting fields. A list of these courses for each program may be obtained from the department office.

Program Requirements

I. Dietetics

a. Major Subject Courses

NUTR 200—Nutrition for Health Services	3
NUTR 330—Nutritional Biochemistry	3
NUTR 440—Advanced Human Nutrition I	4
NUTR 450—Advanced Human Nutrition II	4
NUTR 460—Therapeutic Human Nutrition	4
NUTR 470—Community Nutrition	3
NUTR 475—Dynamics of Community Nutrition	3
FOOD 240—Science of Food I	3
FOOD 250—Science of Food II	3
FSAD 300—Foodservice Organization and Management	3
FSAD 350—Foodservice Operations I	5
FSAD 440—Foodservice Personnel Administration	2
Subtotal	40

b. Supporting Courses

MATH 110—Elementary Mathematical Models or MATH 115: Pre-Calculus	3
CHEM 103—General Chemistry I	4
CHEM 113—General Chemistry II	4
CHEM 233—Organic Chemistry I	4
BIOL 105—Principles of Biology I	4
ZOOL 202—Human Anatomy & Physiology II	4
MICB 200—General Microbiology	4
SPCH 107—Speech Communication: Principles and Practices	3
SOCY 100—Introduction to Sociology	3
PSYC 100—Introduction to Psychology	3
ECON 205—Fundamentals of Economics	3
EDMS 451—Introduction to Educational Statistics or BIOM 301—Introduction to Biometrics	3
ENGL 101—Introduction to Writing	3
ENGL 391—Advanced Composition or ENGL 393—Technical Writing	3
Additional CORE Program Courses	21
Electives	11
Subtotal	80
Total Credits	120

II. Human Nutrition and Foods

a. Major Subject Courses

NUTR 200—Nutrition for Health Services	3
NUTR 440—Advanced Human Nutrition I	4
NUTR 450—Advanced Human Nutrition II	4
FOOD 240—Science of Food I	3
FOOD 250—Science of Food II	3
FOOD 440—Advanced Food Science I	3
FOOD 445—Advanced Food Science Laboratory	1
Subtotal	21

b. Supporting Courses

MATH 115—Precalculus	3
MATH 220—Elementary Calculus I	3
CHEM 103—General Chemistry I	4
CHEM 113—General Chemistry II	4
CHEM 233—Organic Chemistry I	4
CHEM 243—Organic Chemistry II	4
ZOOL 211—Cell Biology and Physiology	4
ZOOL 422—Vertebrate Physiology	4

PHYS 121—Fundamentals of Physics I	4
BCHM 461—Biochemistry I	3
BCHM 463—Biochemistry Laboratory I	2
BCHM 462—Biochemistry II	3
MICB 200—General Microbiology	4
BIOM 301—Introduction to Biometrics	3
ENGL 101—Introduction to Writing	3
ENGL 393—Technical Writing	3
PSYC 100—Introduction to Psychology	3
SOCY 100—Introduction to Sociology	3
SPCH 107—Speech Communication: Principles and Practices	3
ECON 205—Fundamentals of Economics	3
Additional CORE Program Courses	21
Electives	11
Subtotal	99
Total	120

Advising

Department advising is mandatory. Students should consult the current Undergraduate Catalog and also see an appropriate departmental advisor when planning their course of study. Information on advising may be obtained by calling the department office, 405-2139.

Student Organizations

The HNFS Department has an active undergraduate club which does a number of outreach activities, sponsors speakers on career-related topics, and participates in a variety of social activities. Call 405-2139 for more information.

Course Codes: FOOD, FSAD, NUTR

HUMAN RESOURCE MANAGEMENT

For information, consult the College of Business and Management entry.

INDUSTRIAL, TECHNOLOGICAL AND OCCUPATIONAL EDUCATION (EDIT)

This program has been closed. New applicants are not being accepted. Current students should contact the College of Education for advising.

The Major

The Department of Industrial, Technological and Occupational Education offers programs leading to teacher certification and degrees in five different fields of teacher preparation. A sixth field of study, industrial technology, is designed to prepare individuals for supervisory, management, and training positions in industry, business, and government. In addition, a technical education program is available for persons with advanced technical preparation who wish to teach in technical institutes or community colleges.

The five curricula administered by the department include: (1) business education; (2) home economics education; (3) industrial arts/technology education; (4) industrial technology; (5) vocational-technical education. Undergraduate and graduate programs leading to the degrees of Bachelor of Science, Master of Education, Advanced Graduate Specialist, Master of Arts, Doctor of Education, and Doctor of Philosophy are available.

Business Education

Two curricula are offered for preparation of teachers of business subjects: General Business and Secretarial Education. The general business education curriculum qualifies students for teaching all business subjects except shorthand. Providing thorough training in general business, including economics, this curriculum leads to teaching positions at both junior and senior high school levels.

General Business Education

A program of 124 hours of university credit hours is required for a general business education major. Six hours of electives must be selected from the business field.

CORE/USP Requirements
Academic Support Courses (may also count for CORE/USP Requirements. Consult departmental advisor or worksheet and Schedule of Classes)
MATH 111 (3)
SPCH 100, 125 or 220 (3)

Content Courses
BMGT 110—Introduction to Business and Management (3)
EDIT 114—Principles of Typewriting (2)
EDIT 115—Intermediate Typewriting (2)
BMGT 220, 221—Principles of Accounting I & II (3)
ECON 201, 203—Principles of Economics I & II (USP Distributive) (3)
EDIT 214—Office Typewriting Problems (2)
EDIT 215—Survey of Office Machines (3)
BMGT 380—Business Law (3)
BMGT 301—Introduction to Data Processing (3)
BMGT 302—Information Systems Implementation Techniques (3)
BMGT 350—Marketing Principles and Organization (3)
EDIT 406—Word Processing (3)
EDIT 415—Financial and Economic Education I (3)
EDIT 416—Financial and Economic Education II (3)

Professional Courses
EDIT 270—Field Experiences (3)
*EDHD 300S—Human Development and Learning (6)
EDIT 485—Field Experiences in Business Education (3)
*EDPA 301—Foundations in Education (3)
*EDIT 340—Methods of Teaching Office Skills (3)
*EDIT 341—Curriculum, Instruction and Observation Business Education(3)
*EDCI 390—Principles and Methods of Secondary Education (3)
*EDIT 432—Student Teaching (12)
*Requires Admission to Teacher Education

Secretarial Education

The secretarial education curriculum is adapted to the needs of those who wish to become teachers of shorthand as well as other business subjects. A program of 127 hours of university credit is required for a secretarial education major. Nine hours of electives must be selected from the field of business.

CORE/USP Requirements
Academic Support Courses (may also count for CORE/USP Requirements. Consult departmental advisor or worksheet and Schedule of Classes)
SPCH 220 Group Discussion (3)

Content Courses
EDIT 114—Principles of Typewriting (if exempt, BMGT 110) (2)
EDIT 115—Intermediate Typewriting (2)
EDIT 116, 117—Principles of Shorthand I, II (3)
BMGT 220, 221—Principles of Accounting I & II (3)
ECON 201, 203—Principles of Economics I & II (USP Distributive) (3)
EDIT 214—Office Typewriting Problems (2)
EDIT 215—Survey of Office Machines (3)
EDIT 216—Advanced Shorthand and Transcription (3)
EDIT 304—Administrative Secretarial Procedures (3)
BMGT 380—Business Law (3)
EDIT 406—Word Processing (3)
EDIT 405—Business Communications (3)
BMGT 301—Introduction to Data Processing (3)

Professional Courses
EDIT 270—Field Experiences in Education for Business and Industry (3)
*EDHD 300S—Human Development and Learning (6)
*EDPA 301—Foundations of Education (3)
EDIT 485—Field Experiences in Business Education (3)
*EDIT 340—Methods of Teaching Office Skills (3)
*EDIT 341—Curriculum, Instruction and Observation Business Education (3)

*EDCI 390—Principles and Methods of Secondary Education (3)
*EDIT 432—Student Teaching (12)
*Requires Admission to Teacher Education.

Home Economics Education

The home economics curriculum is designed for students who are preparing to teach home economics and includes study in each area of home economics and of the supporting disciplines.

A major in Home Economics Education requires 128 university credit hours. The major is an intensive program which includes required courses in academic support, content, and professional areas. A nine-hour area of concentration designed to give the student expertise in some special facet of home economics must be completed with the approval of an advisor. No upper level credits can be attempted until a student has earned a minimum of fifty-six credits.

CORE/USP Requirements
Academic Support Courses (may also count for CORE/USP Requirements. Consult departmental advisor or worksheet and Schedule of Classes)
CHEM 103 (4)
SPCH 100, 107 or 125 (3)
PSYC 100—Introduction to Psychology (3)
SOCY 100—Introduction to Sociology (3)
BIOL 101—Concepts of Biology (3)
ECON 205—Fundamentals of Economics (3)

Content Courses
TEXT 205—Intro. to Textile Materials or TEXT 105—Textiles in Contemporary Living (3)
NUTR 100—Elements of Nutrition (3)
DESN 101—Fundamentals of Design or
ARTE 101—Introduction to Art Education (3)
FMCD 250—Decision-Making in Family Living (3)
HSAD 240—Design and Furnishings in the Home (3)
or HSAD 251—Family Housing (3)
EDHD 411—Child Growth and Development (3)
FOOD 210—Scientific Principles of Food Preparation and Management (4)
TEXT 211—Apparel or TEXT 222—Apparel II (3)
FMCD 330—Family Patterns or FMCD 105 (3)
SOCY 443—The Family and Society or FMCD 441 (3)
FMCD 445—Family and Household Management (3)

Professional Courses
EDIT 207—Bases for Curriculum Decisions in Home Economics (3)
*EDHD 300—Human Development and Learning (6)
EDIT 435—Curriculum Development in Home Economics (3)
EDIT 436—Field Experience in Analysis of Child Development Lab (3)
*EDPA 301—Foundations of Education (3)
EDIT 493—Home Economics for Special Need Learners or
EDSP 470—Introduction to Special Education (3)
*EDCI 390—Principles and Methods of Secondary Education (3)
EDIT 342—Curriculum, Instruction, and Observation Home Economics (3)
EDIT 442—Student Teaching in Secondary Schools Home Economics (12)
*Requires Admission to Teacher Education

Industrial Arts/Technology Education

This industrial arts/technology education curriculum prepares persons to teach industrial arts/technology education at the middle and secondary school level. It is a four-year program leading to a Bachelor of Science degree. While trade or industrial experience contributes significantly to the background of the industrial arts/technology education teacher, previous work experience is not a condition of entrance into this curriculum. Students who are enrolled in the curriculum are encouraged to obtain work in industry during the summer months. Industrial arts/technology education as a middle and secondary school subject area is a part of the general education program characterized by extensive laboratory experiences.

To obtain a bachelor's degree in Industrial Arts Education, a student must complete 128 hours of University credit. The major is intensive and involves required courses in academic support, content, and professional areas. Eight hours of elective credit should be taken with the advice of the advisor. No upper level credits can be attempted until a student has earned a minimum of fifty-six credits.

CORE/USP Requirements
Academic Support Courses (may also count for CORE/USP Requirements. Consult departmental advisor or worksheet and Schedule of Classes)
CHEM 102 or 103 (4)
SPCH 100 (3)
PHYS 111 or 112 (3)
ECON 205

Content Courses
EDIT 101—Mechanical Drawing I (2)
EDIT 102—Fundamentals of Woodworking (3)
EDIT 112—Technical Calculations (3)
EDIT 262—Basic Metal Machining (3)
EDIT 121—Mechanical Drawing II (2)
EDIT 202—Machine Woodworking (3)
EDIT 127—Fundamentals of Electricity Electronics (3)
EDIT 233—Fundamentals of Power Technology (3)
EDIT 241—Architectural Drawing (2)
EDIT 227—Applications of Electronics (3)
EDIT 223—Arc and Gas Welding (1)
EDIT 210—Foundry (1)
EDIT 226—Fundamental Metal-Working Processes (3)
EDIT 234—Graphic Communications (3)

Professional Courses
EDIT 270—Field Experience (3)
*EDHD 300—Human Development and Learning (6)
*EDPA 301—Foundations of Education (3)
EDIT 311—Lab Practicum in Industrial Arts (3)
*EDCI 390—Principles and Methods of Secondary Education (3)
EDIT 344—Curriculum, Instruction and Observation (3)
*EDIT 422—Student Teaching (12)
EDHD 451—Research and Experimentation in Ind. Arts (3)
EDIT 450—Training Aids Development (3)
EDIT 464—Laboratory Organization and Management (3)
EDIT 466—Educational Foundations of Industrial Arts (3)
*Requires Admission to Teacher Education

Industrial Technology

The industrial technology curriculum is a four-year program leading to a Bachelor of Science degree. The purpose of the program is to prepare persons for jobs within industry. It embraces four major areas of competence: (a) technical competence; (b) human relations and leadership competence; (c) communications competence; and (d) social and civic competence.

To obtain a bachelor's degree in Industrial Technology, a student must complete 128 hours of university credit. The program involves required courses in academic support and content areas. Twenty-four hours of electives should be selected to create a concentration in one of the following areas:

Production and Manufacturing
Industrial Safety
Industrial Training and Human Resource Development
Fire Science and Industrial Safety
Specific Technical Specialty

No upper level credits can be attempted until a student has earned a minimum of fifty-six credits.

CORE/USP Requirements
Academic Support Courses (may also count for CORE/USP Requirements. Consult departmental advisor or worksheet and Schedule of Classes)
PSYC 100 (3)
SPCH 107 (3)
MATH 111 or MATH 220 (3)
PHYS 111 (3)
CHEM 102 or CHEM 103 (4)
ECON 205 (3)
PHYS 112 (3)

Content Courses
EDIT 262—Basic Metal Machining (3)
EDIT 101—Mechanical Drawing I (2)
EDIT 112—Technical Calculations or EDIT Elective (3)
EDIT 121—Mechanical Drawing II (2)

EDIT 210—Foundry (1)
EDIT 223—Arc and Gas Welding (1)
CMSC 103—Intro. to Computing for Non-Majors or
CMSC 110—Introductory Computer Programming (3/4)
EDIT 127—Fundamentals of Electricity Electronics (3)
EDIT 291—Introduction to Plastics Technology (3)
EDIT 224—Organized and Supervised Work Experience (3)
PSYC 361—Industrial Psychology (3)
EDIT 443—Industrial Safety Education I (3)
EDIT 465—Modern Industry (3)
EDIT 226—Fundamental Metalworking Processes or
EDIT 233—Fundamentals of Power Technology OR EDIT 234—Graphic Communications (3)
BMGT 360—Personnel Management (3)
EDIT 444—Industrial Safety Education II (3)
EDIT 425—Analysis of Industrial Training Programs I (3)
EDIT 324—Organized & Supervised Work Experience (3)
BMGT 362—Labor Relations (3)
BMGT 385—Production Management or approved BMGT Elect. (3)
EDIT 360—Industrial Production Technology or approved BMGT Elective (3)

Distributive Education**

A major in Distributive Education prepares the student for a career in teaching at the high school level in a cooperative vocational education program. The degree requires completion of courses in three components beyond the USP program academic support, content and professional courses. The nine credit hours of electives must be selected from BMGT or EDIT offerings. Students must apply for admission to the Teacher Education Program during the semester in which they are completing 45 credit hours.

CORE/USP Requirements
Academic Support Courses (may also count for CORE/USP Requirements. Consult departmental advisor or worksheet and Schedule of Classes)
SPCH 100 (3)

Content Courses
BMGT 110—Business Enterprise (3)
ECON 201—Principles of Economics I (3)
ECON 203—Principles of Economics II (3)
BMGT 220—Principles of Accounting I (3)
BMGT 221—Principles of Accounting II (3)
BMGT 350—Marketing Principles and Organization (3)
BMGT 353—Retail Management (3)
BMGT 354—Promotion Management (3)
BMGT 360—Personnel Management (3)
BMGT 380—Business Law I (3)
BMGT 455—Sales Management (3)
EDIT 486—Field Experience (3)
EDIT or BMGT Electives (9)

Professional Courses
EDIT 270—Field Experiences (in Education) (3)
*EDHD 300S—Human Development and Learning (6)
EDPA 301—Foundations of Education (3)
EDIT 350—Methods of Teaching: Trades and Industry (3)
*EDCI 390—Principles and Methods of Secondary Education (3)
EDIT 414—Organization and Coordination of Cooperative Education Programs (3)
EDSP 210—Introduction to Special Education OR EDSP 475—Education of the Slow Learner (3)
*EDIT 482—Student Teaching: Trade and Industry (12)
EDIT 457—Tests and Measurements (3)
*Requires Admission to Teacher Education
**A name change to Marketing Education has been proposed but has not yet been finally approved.

Vocational-Technical Education

The vocational-technical programs may lead either to certification as a vocational-industrial teacher with no degree involved or to a Bachelor of Science degree, including certification. The University of Maryland is designated as the institution which shall offer the "Trades and Industries" certification courses. The courses offered are those required for certification in Maryland. The vocational-technical curriculum requires trade competence as specified by the Maryland State Plan for Vocational-Industrial Education. A person who aspires to be certified should review the state plan and contact the Maryland State Department of Education. If the person has in mind teaching in a designated school system, he or she may discuss his or her plans with the vocational-industrial education representative of that school system inasmuch as there are variations in employment and certification requirements.

Vocational-Technical Degree Program

The vocational-technical curriculum is a four-year program of studies leading to a Bachelor of Science degree in education. It is intended to develop the necessary competencies for the effective performance of the tasks of a vocational or occupational teacher.

To obtain a bachelor's degree in Vocational-Technical Education, a student must complete 128 hours of university credit. The major is intensive and involves required courses in academic support, content, and professional areas. Five hours of elective credit should be taken with the advice of an advisor. An additional twelve credits of electives are included if student has been exempted from study teaching on the basis of prior experiences.

Persons pursuing this curriculum must present documentary evidence of having an apprenticeship or comparable learning period and journeyman experience. This evidence of background and training is necessary in order that the trade examination phase of the curriculum may be accomplished. If sufficient trade experience is unavailable, such experience must be completed while pursuing the degree. Twenty semester hours of credit toward the degree are granted upon satisfactory completion of the trade competency examination.

Persons having completed the necessary certification courses prior to working on the degree program may use such courses toward meeting graduation requirements. However, after certification course requirements have been met, persons continuing studies toward a degree must take courses in line with the curriculum plan and University regulations. For example, junior level courses may not be taken until the student has reached full junior standing.

CORE/USP Requirements
Academic Support Courses (may also count for CORE/USP Requirements. Consult departmental advisor or worksheet and Schedule of Classes)
SPCH 100 (3)
ECON 205 (3)
MATH 115 (3)
PSYC 100 (3)
CHEM 103 (4)

Content Courses
EDIT 112 Technical Calculations (3)
EDIT 465 Modern Industry (3)

Professional Courses
EDIT 270—Field Experience (3)
*EDHD 300—Human Development and Learning (6)
EDIT 462—Occupational Analysis and Course Construction (3)
EDIT 450—Training Aids Development (3)
EDIT 471—Principles and History of Vocational Education (3)
EDIT 457—Tests and Measurements (3)
EDIT 350—Methods of Teaching (3)
*EDCI 390—Principles and Methods of Secondary Education (3)
EDIT 482—Student Teaching* (12)
EDIT 461—Principles of Vocational Guidance (3)
EDIT 499—Coordination of Co-op Work Experience (3)
*EDPA 301—Social Foundations of Education (3)
EDIT 464—Laboratory Organization and Management (3)
*Requires Admission to Teacher Education

Elective courses in the technical area (shop and drawing) will be limited to courses and subjects not covered in the trade training experience. Courses dealing with advanced technology and recent improvements in field practices will be acceptable.

Vocational-Industrial Certification

To become certified as a trade industrial and service occupations teacher in the State of Maryland a person must successfully complete eighteen credit hours of instruction plus a three credit course in special education or mainstreaming.

The following courses must be included in the eighteen credit hours of instruction:

EDIT 350—Methods of Teaching (3)
EDIT 464—Laboratory Organization and Management (3)
EDIT 457—Tests and Measurements (3)
EDIT 462—Occupational Analysis and Course Construction (3)

The remainder of the credit hours shall be met through the election of any two of the following seven courses or completing one of the options:
EDCP 411—Mental Hygiene (3)
EDIT 450—Training Aids Development (3)
EDIT 461—Principles of Vocational Guidance (3)
EDIT 465—Modern Industry (3)
EDIT 467—Problems in Occupational Education (3)
EDIT 471—History and Principles of Vocational Education (3)
EDIT 499D—Workshop in Vocational Education (3)
Option 1
EDHD 300—Human Growth and Development (6)
Option 2
General Psychology (3)
Educational Psychology (3)

A person in vocational-technical education may use his or her certification courses toward a Bachelor of Science degree. A maximum of twenty semester hours of credit may be earned through examination in the trade in which the student has competence. Prior to taking the examination, the student shall provide documentary evidence of his or her apprenticeship or learning period and journeyman experience. For further information about credit examination refer to the academic regulations or consult with the department staff.

Course Code: EDIT

JEWISH STUDIES PROGRAM

College of Arts and Humanities

2106 Jimenez Hall, 405-4241

Director: Cooperman
Professors: Beck, Berlin, Diner, Handelman
Associate Professors: Bilik, Cooperman, Manekin, Rozenblit
Instructors: Levy, Liberman

The Major

The Jewish Studies major provides undergraduate students with a framework for organized and interdisciplinary study of the history, philosophy, and literature of the Jews from antiquity to the present. Jewish Studies draws on a vast literature in a number of languages, especially Hebrew and Aramaic, and includes the Bible, the Talmud, medieval and modern Hebrew literature. Yiddish language and literature comprise an important sub-field.

Requirements for Major

The undergraduate major requires forty-eight semester hours (twenty-seven hours minimum at 300-400 level) consisting of courses in the Department of Hebrew and East Asian Languages and Literatures, the History Department, and in other departments as appropriate.

A minimum grade of C is required in all courses offered toward major requirements. A major in Jewish Studies will normally conform to the following curriculum:

1. Prerequisite: HEBR 111, 112, 211, 212 (or placement exam)
2. Required courses: HEBR 313, 314; HIST 282, 283, and either HIST 309 or a research-oriented course in Hebrew approved by advisor (at 300 level or above); one course in classical Jewish literature (200-level); one upper-level course in Hebrew literature in which the text and/or language of instruction are in Hebrew. (twenty-one credit hours).
3. Electives: fifteen credits in Jewish Studies courses. At least nine credits must be at the 300-400 level.
4. Twelve credits of supporting courses in areas outside Jewish Studies such as history, sociology, philosophy, psychology, or literature, including at least six credits at the 300-400 level, to be selected with the approval of a faculty advisor.

Financial Assistance

The Meyerhoff Center for Jewish Studies (405-4241) offers scholarships for study in Israel. Applications for scholarships are accepted in early March.

See Hebrew departmental entry and East Asian Studies certificate. Students may also pursue a Jewish History concentration through the Department of History.

JOURNALISM (JOUR)

For information, consult the College of Journalism entry.

KINESIOLOGY (KNES)

(Formerly Physical Education)

College of Health and Human Performance

2351 HLHP Building, 405-2450

Chair: Clarke
Associate Chair: Wrenn
Professors: Clarke, Dotson, Kelley, Sloan, Steel, Vaccaro
Associate Professors: Clark, Ennis, Hagberg, Hatfield, Hult, Hurley, Phillips, Santa Maria, Struna, Wrenn
Assistant Professors: Arrighi, Caldwell, Chalip, Rogers, Ryder, Scott, Tyler, Vander Velden
Instructors: Drum, Owens, Wenhold
Lecturer: Brown
Emeriti: Eyler, Humphrey, Husman

The Major

The Department of Kinesiology offers two undergraduate degree programs to satisfy different needs of students. Students may choose to major in Physical Education or in Kinesiological Sciences. Descriptions of each program follow.

Physical Education Major

This curriculum, including three certification options, prepares students (1) for teaching physical education in elementary and secondary schools, (2) for coaching, and (3) for leadership in youth and adult groups which offer a program of physical activity. Students are referred to the section on the College of Education for information on teacher education application procedures. The first two years of this curriculum are considered to be an orientation period in which the student has an opportunity to gain an adequate background in general education as well as in those scientific areas closely related to this field of specialization. In addition, emphasis is placed upon the development of skills in a wide range of motor activities.

Physical Education majors have a choice of three separate options for teacher certification: (1) kindergarten through sixth grade, (2) seventh through twelfth grade or (3) kindergarten through twelfth grade. Due to increased marketability it is recommended that students pursue the K-12 option. The specific course requirements for each option are as follows:

Departmental Requirements/All Certification Options

	Credit Hours
CORE Requirements (see the *Schedule of Classes* for more specific information)	46
HLTH 150—First Aid and Safety	2
PHYS 101 or 111 or CHEM 102 or 103 or 105	3-4
KNES 180—Foundations of Physical Education	3
BIOL 105—Principles of Biology I	4
ZOOL 201, 202—Human Anatomy and Physiology I, II	8
EDHD 300—Human Development and Learning	6
KNES 300—Biomechanics of Human Motion	4

EDPA 301—Foundations of Education	3
KNES 314—Methods in Physical Education	3
KNES 333—Physical Activity for the Handicapped	3
KNES 385—Motor Learning and Skilled Performance	3
KNES 390—Practicum in Teaching Physical Education	3
KNES 480—Measurement in Physical Education	3
KNES 491—Curriculum in Physical Education	3
KNES Skills Laboratories*	17

*Students should discuss this requirement with department advisors.

K-6 Certification Option

KNES 370—Motor Development	3
EDHD 320—Human Development through the Lifespan	3
EDCI 485—Student Teaching in Elementary School-Physical Education	8
KNES 421—Physical Education for Elementary School: A Movement Approach	3
KNES Electives (6 hours total), KNES 350, KNES 360, or KNES 493	6
Electives	6-7

7-12 Certification Option

EDCI 390—Principles and Methods of Secondary Education	3
KNES 381—Prevention and Care of Athletic Injuries	3
EDCI 495—Student Teaching in Secondary Schools	8
KNES 360—Physiology of Exercise	3
KNES 490—Administration of Physical Education and Sport	3
KNES 493—History and Philosophy of Sport and Physical Education	3
Electives	4-5

K - 12 Certification Option

EDCI 390—Principles and Methods of Secondary Education	3
EDCI 485—Student Teaching in Elementary Schools	6
EDCI 495—Student Teaching in Secondary Schools	6
KNES 381—Prevention and Care of Athletic Injuries	3
KNES 421—Physical Education for Elementary School: A Movement Approach	3
KNES 360—Physiology of Exercise	3
KNES 370—Motor Development	3
KNES 490—Administration of Physical Education and Sport	3
KNES 493—History and Philosophy of Sport and Physical Education	3

The Physical Education program requires a grade of "C" or better in all but general education and free elective courses.

Admission

Admission to the Physical Education major occurs upon completion of 45 applicable credits. At that time, students apply through the College of Education by taking the California Achievement Test. Additionally, all physical education majors must have and maintain a 2.5 average to gain admittance and continue in the program.

Kinesiological Sciences Major

This curriculum offers students the opportunity to study the body of knowledge of human movement and sport, and to choose specific programs of study which allow them to pursue a particular goal related to the discipline. There is no intent to orient all students toward a particular specialized interest or occupation. This program provides a hierarchical approach to the study of human movement. First, a core of knowledge is recognized as being necessary for all students in the curriculum. These core courses are considered foundational to advanced and more specific courses. Secondly, at the "options" level, students may select from two sets of courses which they believe will provide the knowledge to pursue whatever goal they set for themselves in the future. To further strengthen specific areas of interest, students should carefully select related studies courses and electives.

Kinesiological Sciences Degree Requirements

	Credits
Freshman Year	
KNES 287—Sport and American Society	3
KNES 293—History of Sport in America	3
Activity Courses*	4
Electives	3
Sophomore Year	
ZOOL 201, 202—Human Anatomy and Physiology	8
KNES 370—Motor Development	3
Activity Courses*	4
Related Studies*	6
Junior Year	
KNES 300—Biomechanics of Human Motion	4
KNES 350—Psychology of Sports	3
KNES 360—Physiology of Exercise	3
KNES 362—Philosophy of Sport	3
KNES 385—Motor Learning and Skilled Performance	3
Option*	3
Related Studies*	6
Senior Year	
KNES 496—Quantitative Methods	3
KNES 497—Independent Studies Seminar	3
Electives	7
Option*	9
Related Studies*	3

*Students should discuss these requirements with a department advisor.

In addition to the above required courses, students must fulfill the CORE Program. Minimum number of semester hours for degree is 120.

The Kinesiological Sciences program requires a grade of "C" or better in all but general education and free elective courses.

Advising

Advising is strongly recommended for all students majoring in Physical Education and Kinesiological Sciences although it is not mandatory. Students are assigned a permanent faculty member to assist them with registration procedures, program updates and other information. Students are advised to follow closely the program sheets which outline the order in which courses should be taken to allow proper progression through the degree programs. Departmental contacts are: Physical Education-Lynn Owens, 405-2495; Kinesiological Sciences-Dr. Robert Tyler, 405-2473.

Honors and Awards

The aim of the Honors Program is to encourage superior students by providing an enriched program of studies which will fulfill their advanced interests and needs. Qualified students are given the opportunity to undertake intensive and often independent studies wherein initiative, responsibility, and intellectual discipline are fostered. To qualify for admission to the program:

1. A freshman must have a "B" average in academic (college prep) curriculum of an accredited high school.
2. A sophomore must have a cumulative GPA of 3.00 in all college courses of official registration.
3. All applicants must have three formal recommendations concerning their potential, character, and other related matters.
4. All applicants must be accepted by the Faculty Honors Committee. In completing the program, all honor students must:
   a. Participate in an honors seminar where thesis and other relevant research topics are studied.
   b. Pass a comprehensive oral examination covering subject matter background.
   c. Successfully prepare and defend the honors thesis.

On the basis of the student's performance in the above program, the college may vote to recommend graduation without honors, with honors, or with high honors.

Student Organizations

All students enrolled in physical education as either teacher preparation or kinesiological sciences majors are eligible for membership in the Physical Education Student Association (PESA). The goals of PESA are (1) to encourage participation in local, state, or regional, and national professional organizations, (2) to provide opportunities for leadership through involvement in campus, community, and professional activities, (3) to promote the study and discussion of current issues, problems, and

trends, (4) to assist in the acquisition of career skill competencies by application in relevant field experiences, (5) to foster a spirit of service to others through volunteer projects, and (6) to sponsor social activities and to develop effective professional relationships.

Course Code: KNES

LINGUISTICS (LING)

College of Arts and Humanities

1109 Mill Building, 405-7002

Professor and Chair: Lightfoot
Professor: Hornstein
Assistant Professors: Gorrell, Lebeaux, Lombardi, Uriagereka, Weinberg
Affiliate: Anderson, Berndt, Burzio, Caramazza, Gasarch, Zanuttini

The Major

The Linguistics Department offers courses on many aspects of language study and an interdisciplinary major leading to a Bachelor of Arts. Language is basic to many human activities and linguistics relates to many other disciplines which include work on language.

Work on language has provided one of the main research probes in philosophy and psychology for most of the 20th century. It has taken on a new momentum in the last thirty years and language research has proven to be a fruitful means to cast light on the nature of the human mind and on general cognitive capacity. Several courses focus on a research program which takes as a central question: How do children master their native language? Children hear many styles of speech, variable pronunciations and incomplete expressions, but, despite this flux of experience, they come to speak and understand speech effortlessly, instantaneously and subconsciously. Research aims to discover how this happens, how a person's linguistic capacity is represented in the mind, and what the genetic basis for it is. Students learn how various kinds of data can be brought to bear on their central question, how that question influences the shape of technical analyses.

The Major

The major program in Linguistics is designed for students who are primarily interested in human language per se, or in describing particular languages in a systematic and psychologically plausible way, or in using language as a tool to reveal some aspect of human mental capacities. Such a major provides useful preparation for professional programs in foreign languages, language teaching, communication, psychology, speech pathology, artificial intelligence (and thus computer work).

Requirements for Major

Students obtain a Bachelor of Arts in Linguistics by following one of two tracks: "Grammars and Cognition" or "Grammatical Theory and a Language". In each case, students take a common core of LING courses: LING 200, 240, 311-312, 321-322. Beyond this core, students must specialize by completing an additional nine hours in LING plus one of the following: either eighteen hours from selected courses in HESP, PHIL and PSYC, or eighteen hours in a particular language. The specializations in detail are:

Grammars and Cognition
LING 440—Grammars and Cognition
Two 300/400 LING electives
PHIL 466—Philosophy of Mind
HESP 400—Speech and Language Development in Children
OR HESP 498—Seminar in Psycholinguistics
PSYC 442—Psychology of Language
Three 300/400 electives in HESP, PHIL, PSYC or CMSC

Grammatical Theory and a Language
LING 410—Grammars and Meaning and LING 411—Comparative Syntax OR
LING 420—Word Formation and LING 412—Advanced Phonology
LING 300/400 elective
Five required courses in the language of specialization.
A course in the history or structure of the language of specialization.

When possible, the language of specialization should be the same as the one used to satisfy the college Foreign Language Requirement. The specialization normally includes those courses that make up the designated requirement for a major in the chosen language. Special provision may be made for students who are native speakers of a language other than English and wish to conduct analytical work on the grammar of that language. A student may also study grammatical theory and English; the eighteen hour concentration in English consists of courses in the history and structure of English to be selected in consultation with the student's Linguistics advisor.

For a double major, students need twenty-seven credits in Linguistics, which normally include the LING courses for one of the two specializations.

Course Code: LING

MANAGEMENT AND ORGANIZATION

For information, consult the College of Business and Management entry.

MANAGEMENT SCIENCE AND STATISTICS

For information, consult the College of Business and Management entry.

MARKETING

For information, consult the College of Business and Management entry.

MATERIALS AND NUCLEAR ENGINEERING (ENMA, ENNU)

College of Engineering

Acting Chair: Wuttig

Materials Engineering Program (ENMA)

1110C Chemical and Nuclear Engineering Bldg., 405-5211

Professor and Director: Wuttig
Professors: Arsenault, Dieter*, Roytburd
Associate Professors: Ankem, Armstrong*, Salamanca-Riba
Assistant Professors: Briber, Lloyd
*Member of Mechanical Engineering department

The Major

The development and production of novel materials has become a major issue in all fields of engineering. Materials which are strong and light at the same time are needed for space structures; faster electro-optical switching materials will result in improved mass communications; and high temperature plastics would improve the efficiency of transportation systems. Many of today's materials requirements can be met by composites. The materials engineering program provides the student with an interdisciplinary science-based education to understand the structure and resulting properties of metallic, ceramic and polymeric materials. A wide variety of careers is open to graduates of this program ranging from production and quality control in the traditional materials industries to the molecular construction of electronic materials in ultra-clean environments.

Students may use Materials Engineering as a field of concentration in the Bachelor of Science in Engineering degree program.

Requirements for Major

The curriculum is composed of: (1) the required University CORE (general education) requirements; (2) a core of mathematics, physics, chemistry, and engineering courses required of all engineering students; (3) twelve credits of courses selected within a secondary, minor field; (4) twenty-three credits of materials engineering courses; and (5) technical electives

to be selected by the student and his or her advisor to enrich, specialize or expand certain areas of knowledge within the chosen field.

Freshman Year

The Freshman curriculum is the same for all Engineering departments. Please consult The College of Engineering entry.

	Semester I	Semester II
Sophomore Year		
CORE Program Requirements		3
MATH 241—Calculus III	4	
MATH 246—Differential Equations for Scientists and Engineers		3
PHYS 262, 263—General Physics	4	4
ENES 220—Mechanics of Materials	4	
CHEM 233, 243—Organic Chemistry I, II	4	4
ENES 230—Introduction to Materials & Their Applications		3
ENME 205—Engineering Analysis and Computer Prog.	3	
Total	19	17

In general, students should not register for 300-400 level engineering subjects until and unless they have satisfactorily completed MATH 241 and 246.

Junior Year		
CORE Program Requirements	3	3
CHEM 481, 482—Physical Chemistry I, II	3	3
ENMA 300—Materials Science and Engineering	3	
ENMA 301—Materials Engineering Laboratory	1	
ENMA 462—Deformation of Engineering Materials	3	
ENMA 463—Chemical, Liquid and Powder Process of Engineering Materials		3
Minor Courses	3	3
Technical Electives		3
Total	16	15
Senior Year		
CORE Program Requirements	6	6
ENMA 470—Structure and Properties of Engr.	3	
ENMA 471—Phys. Chem. of Engineering Materials		3
ENMA 472—Technology of Engineering Materials	3	
ENMA 473—Processing of Engineering Materials		3
Minor Courses	3	3
Technical Electives		3
Total	15	18

Minimum Degree Credits: 120 credits and the fulfillment of all department, college, and university requirements.
*Qualified students may elect to take CHEM 105 and 115 (4 sem. hrs. each) instead of CHEM 103 and 113.
**Students must consult with an advisor on selection of appropriate courses for their particular course of study.

Admission

All Materials Engineering students must meet admission, progress and retention standards of the College of Engineering.

Advising

Students choosing materials engineering as their primary field should follow the listed curriculum for materials engineers. They should submit a complete program of courses for approval during their junior year. Students electing materials engineering as their secondary field should seek advice from the director of the materials engineering faculty prior to their sophomore year. Call 405-5211 to talk to the director or to schedule an appointment.

Co-op Program

The materials engineering program works within the College of Engineering Cooperative Engineering Education Program. For details, see the College of Engineering entry in this catalog.

Financial Assistance

Financial Aid based upon need is available through the Office of Student Financial Aid. A number of scholarships are available through the College of Engineering. Part-time employment is available in the department.

Honors and Awards

Each of the large number of professional materials oriented societies such as the metallurgical and ceramic societies sponsor awards to recognize outstanding scholarship and undergraduate research. All students enrolled in the materials engineering program are encouraged to select a faculty advisor who in their junior and senior year will guide them towards nomination for these awards.

Student Organization: All major professional materials societies invite students to become active in their undergraduate divisions. The materials faculty members specializing in certain areas of materials engineering will guide the students toward the society of their choice.

Course Code: ENMA

Nuclear Engineering Program (ENNU)

2309 Chemical and Nuclear Engineering Building, 405-5227

Acting Director: Pertmer
Professors: Almenas, Hsu, Modarres, Munno, Roush, Silverman
Associate Professors: Mosleh, Pertmer
Lecturers: Graves, Lee, Speis

The Major

Nuclear Engineering deals with the practical use of nuclear energy from nuclear fission, fusion and radioisotope sources. The major use of nuclear energy is in electric power generation. Other uses are in the areas of chemical processing, medicine, instrumentation, and isotope trace analysis. The nuclear engineer is primarily concerned with the design and operation of energy conversion devices ranging from very large reactors to miniature nuclear batteries, and with the use of nuclear reactions in many environmental, biological and chemical processes. Because of the wide range of uses for nuclear systems, the nuclear engineer finds interesting and diverse career opportunities in a variety of companies and laboratories. Students may use nuclear engineering as a field of concentration in the Bachelor of Science in Engineering degree program.

Requirements for Major

The curriculum is composed of: (1) the required University general education (CORE) requirements; (2) a core of mathematics, physics, chemistry, and engineering sciences required of all engineering students; (3) fifteen credits of courses selected within a secondary field; (4) twenty-seven credits of nuclear engineering courses including ENNU 215, 440, 450, 455, 460, 465, 480, and 490; (5) the course on environmental effects on materials, ENMA 464. A maximum degree of flexibility has been retained so that the student and advisor can select an elective engineering course, an elective ENNU course, and two technical elective courses. A sample program follows:

Freshman Year. The Freshman year is the same for all Engineering departments. Please consult The College of Engineering entry.

	Semester I	Semester II
Sophomore Year		
CORE Program Requirements	3	3
MATH 241—Calculus III	4	
MATH 246—Differential Equations		3
PHYS 262, 263—General Physics	4	4
ENES 230—Intro. to Materials and Their Applications	3	
ENES 240—Engineering Computation or ENME 205	3	
Secondary Field Elective		3
ENNU 215—Intro. to Nuclear Technology		3
Total	17	16

Junior Year		
CORE Program Requirements	3	6
ENNU 440—Nuclear Technology Laboratory	3	
ENNU 450—Nuclear Reactor Engineering I	3	
Math-Physical Science Elective	3	
Secondary Field Courses	3	3
ENNU 455—Nuclear Reactor Engineering II		3
ENNU 460—Nuclear Heat Transport		3
ENMA 464—Environmental Effects on Engineering Materials		3
Total	15	18
Senior Year		
CORE Program Requirements	3	3
ENNU Elective		3
ENNU 465—Nuclear Reactor Systems Analysis		3
Secondary Field Courses	3	3
Technical Electives	3	3
ENNU 480—Reactor Core Design	3	
ENNU 490—Nuclear Fuel and Power Management		3
Engineering Elective	3	
Total	15	18

Minimum Degree Credits: 120 credits and fulfillment of all department, college, and University requirements.
*Qualified students may elect to take CHEM 105 and 115 (4 sem. hrs. each) instead of CHEM 103 and 113.
**Students must consult with an advisor on selection of appropriate courses for their particular course of study.

Admission

All Nuclear Engineering students must meet admission, progress and retention standards of the College of Engineering.

Co-op Program

The nuclear engineering program works within the College of Engineering Cooperative Engineering Education Program. For information on this program, see the College of Engineering entry in this catalog, or call 405-3863.

Advising

Students choosing nuclear engineering as their primary field should follow the listed curriculum for nuclear engineers. They should submit a complete program of courses for approval during their junior year. Students electing nuclear engineering as their secondary field should seek advice from a member of the nuclear engineering faculty prior to their sophomore year. Call 405-5227 to talk to an advisor or to schedule an appointment.

Financial Assistance

Financial aid based upon need is available through the Office of Student Financial Aid. A number of scholarships are available through the College of Engineering. Part-time employment is available in the department. Of particular interest are scholarships available to qualified students at all undergraduate levels from the Institute for Nuclear Power Operations.

Honors and Awards

Annual awards are given to recognize scholarship and outstanding service to the department, college and university. These awards include the American Nuclear Society Award for Leadership and Service and the Award for Outstanding Contribution to the ANS Student Chapter. The American Nuclear Society also provides awards to recognize the highest GPA for a student at the senior, junior and sophomore levels and to a senior with greatest scholarship improvement. The Baltimore Gas and Electric Company also grants, through the program, an award for the Outstanding Junior of the year and a scholarship which includes the opportunity for summer employment to an academically qualified student with demonstrated interest in utility employment.

Student Organization

Students operate a campus student chapter of the professional organization, the American Nuclear Society.

Course Code: ENNU

MATHEMATICS (MATH)

College of Computer, Mathematical and Physical Sciences

1117 Mathematics Building
Undergraduate Office, 405-5053

Professor and Chair: Johnson
Professors: W. Adams, Alexander, Antman, Auslander, Babuska***, Benedetto, Berenstein, Brin, Chu, J.Cohen, Cook, Cooper, Correl, Ellis, Fey**, Fitzpatrick, Freidlin, Goldberg, Goldhaber, Goldman, Gray, Green, Greenberg, Gromov, Grove, Gulick, Hamilton, Herb, Herman, Horvath, Hummel, Jones, Kagan, Kedem, Kellogg***, King, Kirwan, Kleppner, Kudla, Kueker, Lay, Lipsman, Lopez-Escobar, Markley, Mikulski, Millson, Neri, Olver, Osborn, Owings, Rohrlich, Rosenberg, Rudolph†, Schafer, Slud, Sweet, Syski, Washington, Wei, Wolfe, Wolpert†, Yacobson, Yang, Yorke***, Zedek
Associate Professors: J. Adams, Berg, Boyle, Chang, Coombes, Dancis, Efrat, Glaz, Grebogi***, Grillakis, Helzer, Li, Maddocks, Nochetto, Pego, Sather, Schneider, Smith, Warner, Winkelnkemper
Assistant Professors: Currier, Fakhre-Zakeri, Laskowski, Lee, Stuck, von Petersdorff, Wang, Wu
Professors Emeriti: Brace, L. Cohen, Douglis, Ehrlich, Good, Heins, Jackson, Lehner, Pearl, Stellmacher
Affiliate Professors: Stewart, Young, O'Leary
Instructors: Alter, Cleary

†Distinguished Scholar-Teacher
**Joint Appointment: Department of Curriculum and Instruction
***Joint Appointment: IPST

The program in mathematics leads to a degree of Bachelor of Science in mathematics and offers students training in the mathematical sciences in preparation for graduate work, teaching and positions in government or industry.

Requirements for Major

Each mathematics major must complete, with a grade of C or better in each course, the following:

1. The introductory sequence MATH 140, 141, 240, 241 or the corresponding honors sequence MATH 250, 251.
2. Eight MATH/MAPL/STAT courses at the 400 level or higher, at least four of which are taken at College Park. The eight courses must include:
   (a) At least one course from MATH 401, 403, 405.
   (b) At least one course from MATH 246, 414, 415, 436, 462. If MATH 246 is chosen, it will not count as one of the eight upper level courses.
   (c) One course from MAPL 460, 466. (This assumes knowledge of CMSC 104 or equivalent.)
   (d) MATH 410 (completion of MATH 250-251 exempts the student from this requirement and (e) below; students receive credit for two 400 level courses).
   (e) A one-year sequence which develops a particular area of mathematics in depth, chosen from the following list:
      (i) MATH 410-411
      (ii) MATH 403-404
      (iii) MATH 446-447
      (iv) STAT 410-420.
      (v) MATH/MAPL 472-473
   (f) The remaining 400 level MATH/MAPL/STAT courses are electives, but cannot include any of: MATH 400, 461, 478-488, or STAT 464. EDCI 451 may be used to replace one of the upper level elective courses. Also, students with a strong interest in applied mathematics may, with the approval of the Undergraduate Office, substitute two courses (with strong mathematics content) from outside the Mathematics Department for one upper level elective course.
3. One of the following supporting three course sequences. These are intended to broaden the student's mathematical experience. Other sequences might be approved by the Undergraduate Officebut they would have to make use of mathematical ideas, comparable to the sequences on this list.
   (a) i) PHYS 161, 262, 263
   ii) PHYS 171, 272, 273
   iii) PHYS 141, 142, and an upper level physics course approved by the Mathematics Department

(b) ENES 102, PHYS 161, ENES 220
(c) i) CMSC 112, 113, and one of CMSC 311, 330
ii) CMSC 112, 150, 251
(d) CHEM 103, 113, and one of CHEM 227, 233
(e) ECON 201, 203, and one of ECON 305 or 306
(f) BMGT 220, 221, 340.

Within the Department of Mathematics there are a number of identifiable areas which students can pursue to suit their own goals and interests. They are briefly described below. Note that they do overlap and that students need not confine themselves to one of them.

1. Pure mathematics: the courses which clearly belong in this area are: MATH 402, 403, 404, 405, 406, 410, 411, 414, 415, 417, 430, 432, 436, 437, 445, 446, 447, 452, STAT 410, 411, 420. Students preparing for graduate school in mathematics should include MATH 403, 405, 410 and 411 in their programs. MATH 463 (or 660) and MATH 432 (or 730) are also desirable. Other courses from the above list and graduate courses are also appropriate.
2. Secondary teaching: the following courses are required to teach mathematics at the secondary level: MATH 402 or 403, 430 and EDCI 451. (EDCI 451 is acceptable as one of the eight upper level math courses required for a mathematics major.) These additional courses are particularly suited for students preparing to teach: MATH 406, 445, 463, STAT 400 and 401. EDHD 300, EDPA 301, EDCI 350 or 455, and EDCI 390 are necessary to teach; before registering for these courses, the student must apply for and be admitted to teacher education.
3. Statistics: For a student with a Bachelor of Arts seeking work requiring some statistical background, the minimal program is STAT 400-401. To work primarily as a statistician, one should combine STAT 400-401 with at least two more statistics courses, most suitably, STAT 440 and STAT 450. A stronger sequence is STAT 410, 420, 450. This offers a better understanding and wider knowledge of statistics and is a general purpose program (i.e., does not specify one area of application). For economics applications STAT 400, 401, 440, 450, and MAPL 477 should be considered. For operations research MAPL 477 and/or STAT 411 should be added or perhaps substituted for STAT 450. To prepare for graduate work, STAT 410 and 420 give the best background, with STAT 411, 440, 450 added at some later stage.
4. Computational mathematics: there are a number of math courses which emphasize the computational aspects of mathematics including the use of the computer. They are MAPL 460, 466, 467, 477, and MATH 450, 475. Students interested in this area should take CMSC 112, 113 as early as possible, and CMSC 420, 211 are also suggested.
5. Applied mathematics: the courses which lead most rapidly to applications are the courses listed above in 3 and 4 and MATH 401, 414, 415, 436, 462, 463, 464, and MATH/MAPL 472 and 473. A student interested in applied mathematics should obtain, in addition to a solid training in mathematics, a good knowledge of at least one area in which mathematics is currently being applied. Concentration in this area is good preparation for employment in government and industry or for graduate study in applied mathematics.

Advising

Advising for math majors is mandatory. Students are required to sign up for an advising appointment at the math undergraduate office window (1117 Mathematics Building), beginning the week before preregistration.

Honors

The Mathematics Honors Program is designed for students showing exceptional ability and interest in mathematics. Its aim is to give a student the best possible mathematics education. Participants are selected by the Departmental Honors Committee during the first semester of their junior year. To graduate with honors in mathematics they must pass a three-hour written comprehensive examination. Six credits of graduate work are also required. A precise statement of the requirements may be found in the Math Undergraduate Office.

The department also offers a special mathematics department honors analysis sequence (MATH 250,251) for promising freshmen with a strong mathematical background (including calculus). Enrollment in the sequence is normally by invitation but any interested student may apply to the Mathematics Departmental Honors Committee for admission.

Participants in the University Honors Program may also enroll in special honors sections of the lower level mathematics courses (MATH 140H, 141H, 240H, 241H, 246H). Students may also enroll in the honors calculus sequence if invited by the Mathematics Departmental Honors Committee. However, the mathematics departmental honors calculus sequence and the University Honors Program are distinct, and enrollment in one does not imply acceptance in the other. Neither honors calculus sequence is a prerequisite for participating in the Mathematics Honors Program, and students in these sequences need not be mathematics majors.

Awards

Aaron Strauss Scholarships. Up to two are awarded each year to outstanding junior Math Majors. The recipient receives full remission of (in-state) tuition and fees. Applications may be obtained early in the spring semester from the Mathematics Undergraduate Office, 1117 Mathematics Building.

Higginbotham Prize. An award (up to $500) is made to an outstanding senior math major in the spring.

Placement in Mathematics Courses

The Department of Mathematics has a large offering to accommodate a great variety of backgrounds, interests, and abilities. The department permits students to take any course for which they have the appropriate background, regardless of formal coursework. For example, students with a high school calculus course may be permitted to begin in the middle of the calculus sequence even if they do not have advanced standing. Students may obtain undergraduate credit for mathematics courses in any of the following ways: passing the appropriate CEEB Advanced Placement Examination, passing standardized CLEP examinations, and through the department's Credit-by-Examination. Students are urged to consult with advisors from the Department of Mathematics to assist with proper placements.

Statistics and Probability, and Applied Mathematics

Courses in statistics and probability and applied mathematics are offered by the Department of Mathematics. These courses are open to nonmajors as well as majors, and carry credit in mathematics. Students wishing to concentrate in the above may do so by choosing an appropriate program under the Department of Mathematics.

Mathematics Education

Students completing an undergraduate major in mathematics and planning to be certified to teach should contact the College of Education.

Course Codes: MATH,STAT,MAPL

MEASUREMENT, STATISTICS, AND EVALUATION (EDMS)

College of Education

1230 Benjamin Building, 405-3624

Professor and Chair: Lissitz
Professors: Dayton, Macready
Associate Professors: Johnson, Schafer
Assistant Professors: DeAyala, Gold, Tam

For Advanced Undergraduates and Graduates

The Department of Measurement, Statistics, and Evaluation offers courses in measurement, applied statistics, and algorithmic methods for undergraduates. The department is primarily graduate oriented and offers programs at the master's and doctoral levels for persons with quantitative interests from a variety of social science and professional backgrounds. In addition, a doctoral minor is offered for students majoring in other areas. The doctoral major is intended primarily to produce individuals qualified to teach courses at the college level in applied measurement, statistics and evaluation, generate original research and serve as specialists in measurement, applied statistics or evaluation in school systems, industry or government. The master's level program is designed to provide individuals with a broad range of data management, analysis and computer skills necessary to serve as research associates in academia, government, and business. At the doctoral level, a student may choose a specialty within

one of three areas: applied or theoretical measurement, applied statistics, and program evaluation.

Course Code: EDMS

MECHANICAL ENGINEERING (ENME)

College of Engineering

2181 Engineering Classroom Building, 405-2410

Chair: Anand
Associate Chair: Walston
Professors: Allen (PT), Anand, Armstrong, Berger, Buckley (PT), Christou, Cunniff, Dally, Dieter, Fourney, Gupta, Holloway, Irwin (PT), A. Khan, Kirk, Koh, Magrab, Marcinkowski, Marks (PT), Sanford, Sayre (PT), Talaat, Tsai, Wallace, Yang
Associate Professors: Azarm, Barker, Bernard, Bigio, Dick (PT), diMarzo, Duncan, Harhalakis, Humphrey, Ohadi, Pecht, Radermacher, Shih, von Kerczek, Walston
Assistant Professors: Abdelhamid, Anjanappa, Dasgupta, Haslach, Herold, H. Khan, Krishnan, Marasli, Minis, Piomelli, Rao, Sirkis, Tasch, Tasker, Topeleski, Tsui, Wang, Wilner, Wright, G. Zhang, Zhu
Senior Lecturer: Russell
Research Associates: Pavlin, Williams, X. Zhang
Assistant Research Scientists: Jung, Sivathanu
Instructor: Manion
Emeriti: Jackson, Shreeve, Weske

The Major

The primary function of the mechanical engineer is to create devices, machines, structures, or processes which are used to advance the welfare of people. Design, analysis, synthesis, testing, and control are the essential steps in performing this function. Certain aspects of the science and art of engineering are of particular importance to achieve a successful product or service. Some of these aspects are those relating to the generation and transmission of mechanical power, the establishment of both experimental and theoretical models of mechanical systems, computer interfacing, the static and dynamic behavior of fluids, system optimization, and engineering and production management.

Because of the wide variety of professional opportunities available to the mechanical engineer, the curriculum is designed to provide students with a thorough training in basic fundamentals. These include: physics, chemistry, mathematics, computers, mechanics of solids and fluids, thermodynamics, materials, heat transfer, controls, and design. The curriculum includes basic laboratory courses in fluid mechanics, materials engineering, electronic instrumentation and measurements, and a senior laboratory which provides an introduction to professional research and evaluation procedures. Students are introduced to the concept of design via machine design and energy conversion design courses, and seniors participate in a comprehensive design course during their final semester which is frequently linked with an advisor and a problem from industry. This experience helps students anticipate the type of activities likely to be encountered after graduation and also helps to establish valuable contacts with professional engineers.

In order to provide flexibility for students to follow their own interests in Mechanical Engineering, students may choose to concentrate in either mechanical design or energy design in their senior year. In addition, seniors may choose from a wide variety of elective courses such as courses in robotics, computer-aided design, computer-aided manufacturing, electronic packaging, microprocessor theory, ocean engineering, finite element analysis, heating ventilation and air conditioning, solar energy, combustion, advanced fluid flow, and advanced mechanics, to list only a few. A small number of academically superior undergraduate students are able to participate in Special Topic Problems courses in which a student and faculty member can interact on a one-to-one basis.

Requirements for Major

The Freshman curriculum is the same for all Engineering departments and programs. Please consult The College of Engineering entry.

	Semester Credit Hours I	II
Sophomore Year		
CORE Program Requirements	3	3
MATH 241—Calculus III	4	
MATH 246—Differential Equations		3
PHYS 262, PHYS 263—Physics	4	4
ENES 220—Mechanics of Materials	4	
ENES 221—Dynamics		3
ENME 201—M E Project		1
ENME 205—Numerical Methods in Mechanical Engineering	3	
ENME 217—Thermodynamics		3
Total	18	17
Junior Year		
CORE Program Requirements	3	6
ENEE 300—Elect. Engr	3	
ENEE 301—E. E. Lab	1	
ENME 310—Mech. Def. Solids		3
ENME 311—Def. Solids Lab		1
ENME 315—Inter. Thermo	3	
ENME 321—Trans. Proc.		3
ENME 342—Fluid Mech	3	
ENME 343—Fluids Lab	1	
ENME 360—Mechanical Vibration	3	
ENME 381—Meas. Lab		3
Total	17	16
Senior Year		
CORE Program Requirements	3	3
ENME 401—Matl. Sci.	3	
ENME 403—Auto. Controls		3
ENME 404—M.E. Sys. Des.		3
ENME 480—Engr. Exp.	3	
Technical Electives **	6	6
Total	15	15

**At least 3 of the 4 technical electives must be design.

Sample Topics: Kinematic Systems of Mechanisms, Computer Aided Design, Packaging of Electronic Systems, Environmental Engineering, Finite Element Analysis, Reliability and Maintainability, Internal Combustion Engines, Robotics, Solar Energy, Fluid Machinery.

Admission

Admission requirements are identical to those set by the College of Engineering (see College of Engineering section on Entrance Requirements).

Advising

All mechanical engineering students are required to meet with an advisor during registration. Contact the Undergraduate Advising Office, 2188 Engineering Classroom Building, 405-2409.

Financial Assistance

A very limited amount of financial aid is available. Information may be obtained in the Undergraduate Advising Office.

Honors and Awards

The Honors Program is administered through the College of Engineering. Individual honors and awards are presented based on academic excellence and extracurricular activities.

Student Organizations

Student chapters of professional societies include the American Society of Mechanical Engineers, the Society of Automotive Engineers and the American Production Inventory and Control Society. The mechanical engineering honor society is Pi Tau Sigma. Information regarding these societies may be obtained at 2188 Engineering Classroom Building.

Course Code: ENME

METEOROLOGY (METO)

College of Computer, Mathematical, and Physical Sciences

2207 Computer and Space Sciences Building, 405-5392

Professor and Chair: Hudson
Professors: Baer, Ellingson, Shukla, Thompson, Vernekar
Associate Professors: Carton, Dickerson, Pinker, Robock
Adjunct Professor: Sellers

The Department of Meteorology offers a limited number of courses of interest to undergraduate students. Undergraduate students interested in pursuing a bachelor's degree program preparatory to further study or work in meteorology are urged to consider the Physical Sciences Program. It is important that students who anticipate careers in Meteorology consult the Physical Sciences Program advisor representing the Department of Meteorology as early as possible in their studies.

Because of its interdisciplinary nature, the study of the atmosphere requires a firm background in the basic sciences and mathematics. To be suitably prepared for 400-level courses in meteorology, the student should have the following background: either the physics major series PHYS 171, 272, 273 or the series PHYS 161, 262, 263; the mathematics series MATH 140, 141, 240, 241, 246 and either the series CHEM 103, 113 or CHEM 105, 115. Consult the Approved Course Listing for electives in meteorology.

Students who may be preparing for graduate education in meteorology are strongly advised to pursue further coursework from among the areas of physics, applied mathematics, chemistry, computer science, and statistics to supplement coursework in meteorology. With proper counseling from the Department of Meteorology advisor, the student wishing to graduate with an M.S. degree in meteorology may achieve that goal in five and a half years from the inception of university studies.

Course Code: METO

MICROBIOLOGY (MICB)

College of Life Sciences

Microbiology Building, 405-5430

Acting Chair: I.Z. Ades
Professors: Colwell, Joseph, Roberson, Weiner*, Yuan
Associate Professors: Robb*, Stein
Assistant Professors: Benson
Instructors: Gdovin, Smith
Emeritus Professors: Cook, Doetsch, Faber, Hetrick†, Pelczar

†Distinguished Scholar-Teacher
*Joint appointment with Center of Marine Biotechnology

Specialization

Microbiology is the branch of biology dealing with microscopic life-forms such as bacteria, yeast, molds, and viruses. Microbiologists are concerned with the genetics, physiology, ecology, and pathogenicity of these organisms. Studies in microbiology provide the cornerstone to modern molecular biology. Basic principles of microbiology are applied to solve current world-wide problems in disease control and prevention, in food production, and in the development of new techniques of biotechnology.

Requirements for Specialization

See Biological Sciences in this catalog and Microbiology advisor for specific program requirements.

Advising

Advising is mandatory. Students are assigned to a faculty member for mandatory advising and career counselling. Information can be obtained from the departmental office (1117 Microbiology Building, 405-5435) or from the advising coordinator (2107 Microbiology Building, 405-5435).

Research Experience and Internships

Students may gain research experience in laboratories off campus by registering for MICB 388R or on campus in faculty laboratories by registering for MICB 399. Contact the department office, 405-5435, for more information.

Honors and Awards

The Honors Program in Microbiology involves an independent research project undertaken with a faculty advisor. For information, contact the Honors Chair, Dr. S. Benson, 3136 Microbiology Building. The P. Arne Hansen Award may be awarded to an outstanding departmental honors student. The Norman C. Laffer Award is given annually to the graduating senior selected by the faculty as the outstanding student in Microbiology.

Student Organizations

All students interested in microbiology are encouraged to join the University of Maryland student chapter of the American Society for Microbiology, the professional scientific society for microbiologists. Information on this organization may be obtained in the department office.

Course Code: MICB

MUSIC (MUSC)

College of Arts and Humanities

Tawes Fine Arts Building, 405-5549

Professor and Chair: Major (Acting)
Associate Chair: Cooper
Professors: Bernstein, Cohen, Cossa, Fischbach, Folstrom, Guarneri String Quartet (Dalley, Soyer, Steinhardt, Tree), Head, Heifetz, Helm, Hudson, Koscielny, Mabbs, McDonald, Montgomery, Moss, Page, Schumacher, Serwer, Traver†
Associate Professors: Balthrop, Barnett, Davis, Delio, Elliston, Elsing, Fanos, Gibson, Gowen, McClelland, McCoy, Olson, Robertson, Rodriquez, Sparks, Wakefield, Wexler, Wilson
Assistant Professor: Payerle
Lecturer: Beicken
Instructor: Walters

†Distinguished Scholar-Teacher

The Major

The objectives of the department are (1) to provide professional musical training based on a foundation in the liberal arts; (2) to help the general student develop sound critical judgment and discriminating taste in the performance and literature of music; (3) to prepare the student for graduate work in the field; and (4) to prepare the student to teach music in the public schools. To these ends, three degrees are offered: the Bachelor of Music, with majors in theory, composition, and music performance; the Bachelor of Arts, with a major in music; the Bachelor of Science, with a major in music education, offered in conjunction with the College of Education.

Music courses and private lessons are open to all majors who have completed the specified prerequisites, or their equivalents. Lessons are also available for qualified non-majors, if teacher time and facilities permit. The University Bands, University Orchestra, University Chorale, University Chorus, Jazz Ensemble, and other ensembles are likewise open to qualified students by audition.

The Bachelor of Music Degree

Designed for qualified students with extensive pre-college training and potential for successful careers in professional music. Recommendation for admission is based on an audition before a faculty committee. A description of the audition requirements and prerequisites is available in the departmental office. A grade of C or above is required in all major courses.

Sample Program
Bachelor of Music (Perf. Piano)

	Credits
Freshman Year	
MUSP 119/120—Applied Music	8
MUSC 128—Sight Reading for Pianists	4
MUSC 150/151—Theory of Music I/II	6
CORE Program	12
Total	30
Sophomore Year	
MUSP 217/218—Applied Music	8
MUSC 228—Accompanying for Pianists	4
MUSC 230—History of Music I	3
MUSC 250/251—Advanced Theory of Music I/II	8
CORE Program	9
Total	32
Junior Year	
MUSP 315/316—Applied Music	8
MUSC 330/331—History of Music II/III	6
MUSC 328—Chamber Music Performance for Pianists	4
MUSC 450—Musical Form	3
CORE Program	10
Total	31
Senior Year	
MUSP 419/420—Applied Music	8
MUSC 492—Keyboard Music I	3
Musc 467—Piano Pedagogy I	3
Elective	4
CORE Program	9
Total	27

The Bachelor of Arts Degree

Designed for qualified students whose interests include a broader liberal arts experience. Recommendation for admission is based on an audition before a faculty committee. A description of the audition requirements, prerequisites, and program options is available in the departmental office. A grade of C or above is required in all major courses.

Sample Program
Bachelor of Arts (Music)

	Credit Hours
Freshman Year	
MUSP 109/110—Applied Music	4
MUSC 150/151—Theory of Music I/II	6
MUSC 129—Ensemble	2
Electives, College and CORE Requirements	18
Total	30
Sophomore Year	
MUSP 207/208—Applied Music	4
MUSC 250/251—Advanced Theory of Music I/II	8
MUSC 229—Ensemble	2
Electives, College and CORE Requirements	16
Total	30
Junior Year	
MUSP 305	2
MUSC 330/331—History of Music II/III	6
MUSC 450—Musical Form	3
MUSC 329—Ensemble	1
Electives, College and CORE Requirements	18
Total	30
Senior Year	
Music Electives	10
Electives, College and CORE Requirements	20
Total	120

The Bachelor of Science Degree (Music Education)

The Department of Music in conjunction with the College of Education offers the Bachelor of Science degree with concentrations available in Instrumental Music Education and Choral-General Music Education for qualified students preparing for careers in teaching K through 12. Recommendation for admission is based on a performance audition before a faculty committee. Descriptions of audition requirements and interview requirements are available in the Music Department Office on request. For sample program requirements, see Dept. of Curriculum and Instruction, Music Education.

Special Programs

The Department of Music cooperates with other departments in double majors, double degrees, and Individual Studies programs. Details are available on request.

Course Codes: MUSC, MUED, MUSP

NATURAL RESOURCES MANAGEMENT PROGRAM (NRMT)

College of Agriculture

0218 Symons Hall, 405-1258

Coordinator: Kangas
Instructor: Adams

The goal of the Natural Resources Management Program is to teach students concepts of the efficient use and management of natural resources. This program identifies their role in economic development while maintaining concern for society and the environment. It prepares students for careers in technical, administrative, and educational work in water and land use, environmental management, and other areas. Course options also include preparation for graduate study in any of several areas within the biological and social sciences.

Students will pursue a broad education program and then elect subjects concentrated in one of three areas of interest: Plant and Wildlife Resources Management, Land and Water Resources Management, or Environmental Education and Park Management.

Curriculum Requirements

	Semester Credit Hours
CORE Program Requirements*	40
BIOL 105—Principles of Biology I	4
BIOL 106—Principles of Biology II	4
CHEM 103, 113—General Chemistry I, General Chemistry II*	8
One of the following:	4
GEOL 100, 110—Introductory Physical Geology AND Physical Geology Laboratory* OR	
GEOG 201, 211—Geography of Environmental Systems And Geography of Environmental Systems Laboratory*	
AGRO 302—General Soils*	4
AREC 240—Environment and Human Ecology*	3
MATH 140 or 220—Calculus I or Elementary Calculus I*	4-3
BIOM 301—Introduction to Biometrics	3
ECON 201 or 205—Economics*	3
AREC 453—Economic Analysis of Natural Resources	3
BOTN 462, 464—Plant Ecology and Plant Ecology Laboratory	4
GEOG 340	3
OR GEOL 340—Geomorphology (4)	
MICB 200—General Microbiology*	4
PHYS 117—Introduction to Physics*	4
NRMT 470—Principles of Natural Resource Management	4
GVPT 273—Introduction to Environmental Politics	3
AREC 432—Introduction to Natural Resource Policy	3
BMGT 360—Personnel Management	3
CMSC 103—Introduction to Computing for Non-majors OR EDCI 487—Introduction to Computers in Instructional Settings	3

*May satisfy college requirements and/or a CORE requirement.

Option Areas (23 hours)

Plant and Wildlife Resource Management	
Science Area	10
Management Area	10
Related Coursework or Internship	3
Land and Water Resource Management	
Science Area	10
Management Area	10
Related Coursework or Internship	3
Environmental Education and Park Management	
Science Area	10
Management and Education Area	10
Related Coursework or Internship	3

Advising

Advising is mandatory. See the Coordinator, 0218 Symons Hall, 405-1258.

Student Organization

Students may join the campus branch of the Natural Resources Management Society. Further information is available from the Natural Resources Management Society in 0218 Symons Hall.

Course Code: NRMT

PHILOSOPHY (PHIL)

College of Arts and Humanities

1124 Skinner Building, 405-5689/90

Professor and Acting Chair: Slote
Professors: Bub, Darden, Devitt, Greenspan, Lesher, Levinson, Martin, Pasch, Perkins (Emeritus), Schlaretzki (Emeritus), Suppe, Svenonius, Wallace (part-time)
Associate Professors: J. Brown, Celarier, Cherniak, Lichtenberg, Odell, Rey, Stairs
Assistant Professor: Horty
Affiliate Professors: Brush, Hornstein
Adjunct Professor: Luban
Research Associates: Fullinwider, Gottlieb, Sagoff, Wachbroit

The Major

The Department of Philosophy seeks to develop students' logical and expository skills and their understanding of the foundations of human knowledge and of value, in accordance with its conception of philosophy as essentially an activity rather than a body of doctrine. Thus, in all courses students can expect to receive concentrated training in thinking clearly and inventively and in expressing themselves exactly about philosophical issues. This training has general applicability to all professions in which intellectual qualities are highly valued, such as law, medicine, government, publishing and business management. With this in view the major in philosophy is designed to serve the interests of students who are preparing for careers outside of philosophy, as well as the interests of those who are preparing for graduate study in philosophy. The department also offers a wide range of courses in the philosophy of various disciplines for non-majors.

Requirements for Major

For students matriculating before June 1, 1991:

(1) a total of at least thirty hours in philosophy, not including PHIL 100 or PHIL 386
(2) PHIL 271, 310, 320, 326, 341, and at least two courses numbered 399 or above;
(3) a grade of C or higher in each course counted toward the fulfillment of the major requirement.

Fifteen hours of supporting courses are required to be selected in accordance with guidelines available in the Philosophy Department Lounge, Skinner Building, room 1119.

For students matriculating after June 1, 1991:

(1) a total of at least thirty-six hours in philosophy; not including PHIL 386
(2) PHIL 310, 320, 326, either 271 or 273, either 250 or 360 or 380 or 462 or 464, either 341 or 346, and at least two courses numbered 400 or above;
(3) a grade of C or higher in each course counted toward the fulfillment of the major requirement.

Fifteen hours of supporting courses are required to be selected in accordance with guidelines available in the Philosophy Department Lounge, Skinner Building, room 1119.

Course Code: PHIL

PHYSICAL EDUCATION

See Kinesiology.

PHYSICAL SCIENCES PROGRAM

College of Computer, Mathematical, and Physical Sciences

3400 A.V. Williams Building, 405-2677

Chair: Williams
Astronomy: Matthews
Chemistry: Harwood
Computer Science: Kaye
Geology: Stifel
Engineering: Walston
Mathematics: Alter
Meteorology: Robock
Physics: Kacser

Purpose

This program is suggested for many types of students: those whose interests cover a wide range of the physical sciences; those whose interests have not yet centered on any one science; students interested in a career in an interdisciplinary area within the physical sciences; students who seek a broader undergraduate program than is possible in one of the traditional physical sciences; students interested in meteorology; preprofessional students (pre-law, pre-medical); or students whose interests in business, technical writing, advertising or sales require a broad technical background. This program can also be useful for those planning science-oriented or technical work in the urban field; the urban studies courses must be taken as electives. Students contemplating this program as a basis for preparation for secondary school science teaching are advised to consult the Science Teaching Center staff of the College of Education for additional requirements for teacher certification.

The Physical Sciences Program consists of a basic set of courses in physics, chemistry, and mathematics, followed by a variety of courses chosen from these and related disciplines: astronomy, geology, meteorology, computer science, and engineering. Emphasis is placed on a broad program as contrasted with a specialized one.

Students are advised by members of the Physical Sciences committee. This committee is composed of faculty members from each of the represented disciplines. Assignment of an advisor depends on the interest of the student, e.g., one interested principally in chemistry will be advised by the chemistry member of the committee. Students whose interests are too general to classify in this manner will normally be advised by the chair of the Committee.

Curriculum

The basic courses include MATH 140, 141 and one other math course for which MATH 141 is a prerequisite (11 or 12 credits); CHEM 103 and 113, or 105 and 115 (8 credits); PHYS 162, 262, 263 (11 credits); or PHYS 171, 272, 273, 275, 276, 375 (14 credits); CMSC 104 (4 credits); or 112/113 (8 credits).

The choice of the physics sequence depends on the student's future aims and his/her background. PHYS 161, 262, 263 is the standard sequence recommended for most physical science majors. This sequence will enable the student to continue with intermediate level and advanced courses. Students desiring a strong background in physics are urged to enroll in PHYS 171/375. This is the sequence also used by physics majors and leads directly into the advanced physics courses.

Beyond these basic courses the student must complete twenty-four credits at the 300 or 400 level, chosen from any three of the following disciplines: chemistry, physics, mathematics (including statistics), astronomy, geology, meteorology, computer science, and one of the engineering disciplines, subject to certain limitations. The twenty-four distributive credits must be at the upper level (300/400) and shall be distributed so that at least six credits are earned in each of the three selected areas of concentration. A grade of C or better must be earned in both basic and distributive requirement courses.

All Physical Science students must have a planned program of study approved by the Physical Sciences Committee. In no case shall the Committee approve a program which has less than 18 credits in the three distributive areas of the Physical Sciences program to be completed, at the time the program is submitted. Engineering courses used for one of the options must all be from the same department, e.g., all must be ENAE courses, or a student may use a combination of courses in ENCH, ENNU, and ENMA, which are offered by the Department of Chemical Engineering and the Department of Materials and Nuclear Engineering; courses offered as engineering sciences, ENES, will be considered as a department for these purposes.

Because of the wide choice and flexibility within the program, students are required to submit for approval a study plan during their sophomore year, specifying the courses they wish to use in satisfying the requirements of the major. Students who wish to depart from the stipulated curriculum may present their proposed program for approval by the Physical Sciences Committee. An honors program is available to qualified students in their senior year.

Honors

The Physical Sciences Honors Program offers students the opportunity for research and independent study. Interested students should request details from their advisor.

PHYSICS (PHYS)

College of Computer, Mathematical, and Physical Science

1120 Physics Building, 405-5979

Professor and Chair: Boyd
Professor and Associate Chair: Bardasis
Professors Emeriti: Glover, Hornyak, Snow†, Weber
Chancellor Emeritus: Toll
Professors: Alley, Anderson, Antonsen, Banerjee, Bhagat, Boyd, Brill, C.C. Chang, C.Y. Chang, Chant, Chen, Currie, Das Sarma, DeSilva, Dorfman†, Dragt†, Drake, Drew, Earl, Einstein, Falk, Ferrell, Fisher, Gates, Glick, Gloeckler, Gluckstern, Goldenbaum, Goodman, Greenberg, Greene, Griem, Griffin, Holmgren, Hu, Kirkpatrick, Korenman, Layman, Lee, Lynn, MacDonald, Mason, Misner, Mohapatra, Ott, Paik, Papadopoulos, Park, Pati†, Prange, Redish, Richard, Roos, Skuja, Sucher†, Venkatesan, Wallace, Williams, Woo, Zorn
Professor (part-time): Z. Slawsky
Visiting Professor: Franklin
Adjunct Professors: Boldt, Mather, Phillips, Ramaty, Ripin
Associate Professors: Cohen, Ellis, Fivel, Hadley, Hamilton, Hassam, Jawahery, Kacser, Kelly, Kim, Obb, Wang
Assistant Professors: Anlage, Baden, Cohen, Jacobson, Jawahery, Skiff, Wellstood
Lecturers: Nossal, Rapport, Restorff, M. Slawsky, Solow, Stern, Swank

†Distinguished Scholar-Teacher

The Physics Program includes a broad range of undergraduate courses designed to satisfy the needs of almost every student, from the advanced physics major to the person taking a single introductory physics course. In addition, there are various opportunities for personally-directed studies between student and professor, and for undergraduate research. For further information consult "Undergraduate Study in Physics" available from the department.

The Major

Courses required for Physics Major:

Lower Level Courses	Credit Hours
PHYS 171—Introductory Physics: Mechanics	3
PHYS 272—Introductory Physics: Thermodynamics, Electricity and Magnetism	3
PHYS 273—Introductory Physics: Electricity and Magnetism, Waves, Optics	3
PHYS 275—Introductory Physics Lab: Mechanics and Thermodynamics	1
PHYS 276—Introductory Physics Lab: Electricity and Magnetism	2
PHYS 375—Introductory Physics Lab: Optics	2
MATH 140—Calculus I	4
MATH 141—Calculus II	4
MATH 241—Calculus III	4
MATH 240—Linear Algebra	4
Upper Level Courses	
PHYS 410—Elements of Theoretical Physics: Mechanics	4
PHYS 411—Elements of Theoretical Physics: Electricity and Magnetism	4
PHYS 414—Introduction to Thermodynamics and Statistical Mechanics	3
PHYS 421—Introduction to Modern Physics	3
PHYS 422—Modern Physics	4
PHYS 395—Advanced Experiments	3
One upper level mathematics course (preferably differential equation)	
PHYS 429—Atomic and Nuclear Physics: Laboratory	3
or PHYS 485—Electronic Circuits	4

A grade of "C" or better is required in all Mathematics and Physics courses required for the major.

Honors

The Physics Honors Program offers to students of good ability and strong interest in physics a greater flexibility in their academic programs. To receive a citation of "with honors in physics" the student must pass a comprehensive examination in his or her senior year. To receive a citation of "with high honors in physics" he or she must also complete a senior thesis.

Course Code: PHYS

PRODUCTION MANAGEMENT

For information, consult the College of Business and Management entry.

PSYCHOLOGY (PSYC)

College of Behavioral and Social Sciences

1107 Zoology-Psychology Building, 405-5867

Professor and Acting Chair: B. Smith
Professor and Assistant Chair: R. Dooling
Professors: Anderson, Brauth, Campbell*, Carter-Porges, Dies, Fein*,

Fox*, Gelso, Goldstein, Gollub, Hall, Helms, Hill, Hodos†, Horton, Kruglanski, Lightfoot*, Lissitz*, Locke*, Lorion, Magoon (Emeritus), Martin, McIntire, J. Mills, Penner, Porges*, Rosenfeld*, Schneider, Scholnick, Sigall, Steinman, Sternheim, Suomi**, Torney-Purta*, Trickett, Tyler, Waldrop (Emeritus), Yeni-Komshian*
Associate Professors: R. Brown, Coursey, Freeman*, Guzzo, Hanges, K. Klein, Larkin, Leone*, Norman, O'Grady, Plude, Schneiderman*, Steele
Assistant Professors: Alexander, Aspinwall, J. Carter**, Castles**, K. Dies**, Johnson, Marx**, Miller**, Pompilo**, Stangor, Wine**, Zamostny*

*affiliate
**adjunct
†Distinguished Scholar-Teacher

The Major

Psychology can be classified as a biological science (Bachelor of Science degree) and a social science (Bachelor of Arts degree) and the department offers academic programs related to both of these fields. The undergraduate curriculum in psychology is an introduction to the methods by which the behavior of humans and other organisms is studied, and to the biological conditions and social factors that influence such behavior. In addition, the undergraduate program is arranged to provide opportunities for learning that will equip qualified students to pursue further study of psychology and related fields in graduate and professional schools. Students who are interested in the biological aspects of behavior tend to choose a program leading to the Bachelor of Science degree, while those interested primarily in the impact of social factors on behavior tend to choose the Bachelor of Arts degree. The choice of program is made in consultation with an academic advisor.

Requirements for Major

Graduation requirements are the same for the Bachelor of Science and Bachelor of Arts degrees. Students must take at least 35 credits in Psychology including 14 credits at the 400 level. PSYC 386, 387, 478 and 479 may not be included in those 35 required credits. The required courses include PSYC 100, 200 and two laboratory courses chosen from PSYC 400, 410, 420, 440, and 450. In order to assure breadth of coverage, Psychology courses have been divided into four areas. The 35 credit total must include at least two courses from two of the four areas and at least one course from each of the remaining areas. The areas and courses are:

Area I: 206, 301, 310, 400, 401, 402, 403, 404, 405, 410, 453;
Area II: 221, 341, 420, 421, 423, 424, 440, 442, 443, 444;
Area III: 235, 330, 332, 334, 337, 353, 354, 355, 356, 357, 432, 433, 435, 436, 455, 456, 457, 458;
Area IV: 336, 361, 450, 451, 452, 460, 462, 463, 464, 465, 466

In addition, all students must complete (a) either MATH 111, or MATH 140 or MATH 220; (b) one of the following laboratory courses: BIOL 105, CHEM 103, 104, 105, 113, 115, KNES 360, PHYS 121, 141, 142, 191/5, 192/6, 293/5,294/6, 262, 263, ZOOL 201, 202, 210, 212; and (c) ENGL 101 or an English literature course from a prescribed department list.

Students pursuing a Bachelor of Science degree must complete a 15 credit supporting course sequence in relevant math and/or science courses including two laboratory courses and 9 credits at the advanced level. The 15 credits must be completed with at least a 2.0 average. Students should consult the current Psychology Undergraduate Program Guide for a list of approved advanced Math-Science Courses.

A grade of C or better must be earned in all 35 credits of psychology courses used for the major and all credits used to meet the Math-English-Science supporting course sequence. No course may be used as a prerequisite unless a grade of C is earned in that course prior to its use as a prerequisite. The prerequisite for any required laboratory course is a 2.5 grade point average in PSYC 100 and 200 and completion of the Math-English-Science supporting course sequence. The departmental grade point average will be a computation of grades earned in all psychology courses taken (except 386, 387, 478, and 479) and the courses selected to meet the Math-English-Science sequence. The GPA in the major must be at least 2.0.

Admission to the Department of Psychology

See the Admissions section in this catalog for general LEP admissions policies.

Freshman Admission and the 45 Credit Review. Most first-time entering freshmen will gain admission to the Department of Psychology directly from high school, as allowed by space considerations within the Department. Because space may be limited before all interested freshmen are admitted to the program, early application is encouraged. Freshmen admitted to the program will have access to the necessary advising through their initial semesters to help them determine if Psychology is an appropriate area for their interests and abilities.

Freshmen who are admitted directly to Psychology will be subject to a performance review by the time they have completed 45 credits. To meet the provisions of the review, these students must complete: (1) the Math/English/Science supporting course sequence with a C or better in each course; and (2) PSYC 100 and 200 with a minimum average of 2.5 for the two courses. Students who do not meet this standard will be required to select another major.

Transfer Admission. The following requirements affect new transfer students to the university as well as on-campus students hoping to change majors to the Department. Admission of transfer students may be severely limited, and capacity is determined each year in accordance with the success of incoming freshmen.

In order to be admitted to Psychology, transfer students will be required to meet the following set of gateway requirements:

Internal (on-campus) Transfers: (1) Completion of PSYC 200 and one other 200-level PSYC course. (2) Completion of the supporting course lab science requirement. (3) Attainment of a C in each course listed in (1) and (2), with a combined GPA of 2.5 for all three. (4) Attainment of a minimum cumulative GPA for all college-level work attempted.

External Transfers: (1) Completion of PSYC 200 and one other PSYC course beyond the introductory level, equivalent to a College Park psychology course. The PSYC 200 equivalent course must include analysis of variance and regression. (2) Completion of the supporting course lab science requirement. (3) Attainment of a C in each course listed in (1) and (2), with a combined GPA of 2.5 for all three. (4) Completion of a course in probability or calculus equivalent to MATH 111, 120, or 140 with a grade of C or better. (5) Attainment of a minimum cumulative GPA for all college-level work attempted.

The required GPA is set each year and may vary from year to year depending upon available space. Contact the Department of Psychology or the Office of Undergraduate Admissions for the current GPA standard.

Appeals. Students who are unsuccessful in gaining admission to Psychology at the freshman or transfer level, and believe they have extenuating or special circumstances which should be considered, may appeal in writing to the Office of Undergraduate Admissions. The students will be notified in writing of the appeal decision once it is made. Contact the Counselor for Limited Enrollment Programs at 301/314-8378 for further information.

Students admitted to Psychology as freshmen who do not pass the 45 credit review but believe they have special circumstances which should be considered may appeal directly to the Department.

Advising

Advising and information about the Psychology program are available weekdays from 9 a.m. to 12 noon and 1 p.m. to 4:30 p.m. in the Psychology Undergraduate Office, 1107 Zoology-Psychology Building. A Program Guide is available. Advising appointments may be made by calling 405-5866. Contact Dr. Ellin K. Scholnick, Director of the Undergraduate Program, 2147A Zoology-Psychology Building, 405-5914, for more information.

Student Organizations

The Psychology Honorary Society, Psi Chi, has an office in the Undergraduate Suite, 1107 Zoology-Psychology Building, where information about applications, eligibility, and membership can be obtained. Psi Chi offers a series of workshops on topics of interest to undergraduates.

Fieldwork

The department offers a program of fieldwork coordinated with a seminar through PSYC 386. Dr. Robert Coursey, 405-5904, usually administers the course.

Honors

The Psychology Honors Program offers the exceptional student a series of seminars and the opportunity to do independent research under a faculty mentor. To be admitted to the program students must file a formal application and be interviewed by the Director of the Program, Dr. William S. Hall (2147B Zoology-Psychology Building, 405-5912). Students are eligible to enter the program if they are in their fourth to sixth semester of undergraduate work and have completed three courses in Psychology including PSYC 200, and have a 3.3 GPA overall and in Psychology. Students in the University Honors Program may be admitted in their third semester providing that they have (a) earned an A in PSYC 100 or 100H, (b) finished the mathematics prerequisite for PSYC 200 and (c) have an overall GPA and Psychology GPA of at least 3.3. Since there are different graduation requirements including an undergraduate thesis and supporting math and science courses, the student is urged to consult the Guide to the Honors Program in Psychology available in the Undergraduate Office.

Course Code: PSYC

RADIO-TELEVISION-FILM (RTVF)

This program has been closed. No new applicants are being accepted. Current students should contact the college for advising.

College of Arts & Humanities

The RTVF Major

The purpose of the Radio-Television-Film major is to provide a liberal education, leading to the Bachelor of Arts degree, in all facets of broadcast communications and the cinematic arts. Our curriculum offers courses in historical and critical approaches to film and broadcasting, courses in the cultural effects of communications, broadcasting management studies, and production courses in sound, film, and television. Radio-Television-Film graduates go on to do post-graduate work in communications or cinema studies, or enter the fields of filmmaking, script writing, television production, broadcast management, corporate television, film archival work, film distribution, and other areas of the communications industry.

Major Requirements

Thirty hours of course work in Radio-Television-Film, exclusive of courses taken to satisfy college requirements. Only fifteen of these credits may be in production oriented courses. All courses require the grade of C or better. Three foundation courses, RTVF 212, 213, and 214, are required of all prospective majors who have satisfied the requirements of the limited enrollment admissions process. At least four courses from the 300 level core program must be taken before 400 level electives. Students are urged to examine the catalogue and check with their advisors to determine the appropriate prerequisites to the courses they may wish to take.

RTVF 124 and 314 do not count toward the major.

Supporting Courses

Fifteen credits in a coherent body of supporting courses, usually in one department, relevant to an Arts & Humanities major. Nine of these credits must be at the 300 or 400 level.

Fieldwork and Internship Opportunities

Supervised internships in a variety of private, educational, and government broadcasting and film organizations are available to RTVF majors who have completed at least 18 major credits with an overall average of at least 2.8.

Students must register for the same number of credits in RTVF 384 (Field Work experience) and RTVF 385 (Field Work Analysis) up to a maximum of three credits each. These courses are not repeatable. RTVF 384 may only be taken Satisfactory-Fail with the grade based upon a written evaluation by the intern's supervisor at the particular organization. Only the credits earned in RTVF 385, in which a letter grade is given, may be counted toward the major requirement. The grade for RTVF 385 will be assigned by the student's faculty supervisor, based on the quality of a project completed in conjunction with the field work experience, the scope of which must be consistent with the number of credits for which the student is enrolled.

Financial Assistance

The Eaton Fellowship is offered to high-ranking undergraduate seniors with a broadcasting emphasis.

Student Organization

Alpha Epsilon Rho — the student honorary organization.

Course Code: RTVF

RECREATION (RECR)

This program has been closed. No new applicants are being accepted. Current students should contact the college for advising.

College of Health and Human Performance

The Major

The Recreation curriculum is designed to meet the needs of students who wish to qualify for positions in the leisure services fields, to enhance their understanding of leisure behavior and related opportunities, and to enable them to render distinct contributions to community life. The department draws upon various other departments and colleges within the University, and upon notable practitioners in the metropolitan area, to enrich course offerings in the leisure studies curriculum. A minimum of 120 credits is required for the Bachelor of Science degree.

Those majoring in recreation and leisure studies have opportunity for observation and practical experience in local, county, state and federal recreation programs, in social and group work agency programs, and in various programs of the Armed Forces, American Red Cross, hospitals, voluntary organizations, business and industry, and commercial recreation establishments. Majors are required to select an area of interest around which to center their elective coursework. The "options," are Program Services, Recreation Resources Management, and Therapeutic Recreation. Development of an area of professional emphasis within an option consistent with the student's career goals is encouraged. This area should focus on a specific population, setting or function within the more general option.

Requirements for Major

The Recreation degree consists of a minimum of 120 credits with course work falling into the following categories: general education, major, option, related requirements and pure electives. There is ample opportunity for double-counting coursework to provide space for additional elective coursework, if desired.

The Recreation program requires a grade of "C" or better in all but general education and free elective courses.

Recreation Curriculum

	Semester Credit Hours
CORE Program (see *Schedule of Classes* for more specific information)	46
RECR 130—Recreation and Leisure	3
SPCH 100—(or alternate approved by Department)	3
GVPT 170 or 100 or 273	3

RECR 270—Leisure Services and Special Populations	3
RECR 350—Recreational Use of Natural Areas	3
EDHD 320—Human Development Through the Life Span	3
RECR 420—Program Planning and Analysis	3
RECR 200—Sophomore Seminar	1
RECR 340—Field Work I	6
RECR 460—Leadership Techniques and Practices	3
RECR 490—Organization and Administration of Recreation	3
RECR 410—Measurement and Evaluation in Recreation	3
RECR 432—Philosophy of Recreation	3
RECR 300—Senior Seminar	
RECR 341—Field Work II	8
Focus Area coursework	30
**Option Requirements (Resource Management and Program Services), (Therapeutic Recreation 10)	6
**Option Competencies	6
Option Electives	18
Pure Elective	1

*Please check advisor for recommended coursework.
**RECR prefix courses may be mandated by option.

Fieldwork

A unique aspect of the Recreation major is the requirement of two practical field-based experiences totalling 560 hours; one is taken at the sophomore level and the other at the senior level.

Course Code: RECR

ROMANCE LANGUAGES PROGRAM

College of Arts and Humanities

3106 Jimenez Hall, 405-4024

Advisory Committee: Falvo (Italian), Little, (Spanish), Mossman (French)

The Romance Languages Program is intended for students who wish to major in more than one Romance language.

The Major

Students selecting this major must take a total of forty-five credits selected from courses in two of the three components listed below: French, Italian and Spanish. The first four courses listed under each group are required for that particular language component; exceptions or substitutions may be made only with the approval of the student's advisor in consultation with the Romance Languages Advisory Committee. To achieve the total of forty-five credits, twenty-one credits are taken in each of the two languages, as specified, and three additional credits are taken at the 400 level in either of the languages chosen. Literature or civilization courses may not be taken in translation.

There are no requirements for support courses for the Romance Languages major.

No grade lower than C may be used toward the major. Students who wish to apply for Teacher's Certification should consult the College of Education.

Requirements for Each Language

French — 204, 301, 351, 352; one additional language course at the 300 or 400 level; two additional literature or civilization courses at the 400 level. Italian — 204, 301, 351, 352; three additional literature or civilization courses at the 400 level. Spanish — 204, 301, 321-322 or 323-324; one additional language course at the 300 or 400 level; two additional literature or civilization courses at the 400 level.

RUSSIAN AREA STUDIES PROGRAM

College of Arts and Humanities

2115 Francis Scott Key Hall, 405-4307

Professors: Brecht and Davidson (Germanic and Slavic), Dawisha (Government and Politics), Foust, Lampe, Yaney (History), Robinson (Sociology)
Associate Professors: Murrell (Economics), Berry, Glad, Hitchcock and Lekic (Germanic and Slavic), Kaminski and Tismaneanu (Government and Politics), Majeska (History)
Assistant Professor: Martin (Germanic and Slavic)
Instructor: Brin (Germanic and Slavic)
Lecturer: Manukian (Government and Politics)

The Major

The Russian Area Studies Program offers courses leading to a Bachelor of Arts in Russian studies. Students in the program study Russian and Soviet culture as broadly as possible, striving to comprehend it in all its aspects rather than focusing their attention on a single element of human behavior. It is hoped that insights into the Russian way of life will be valuable not only as such but as a means to deepen the students' awareness of their own society and of themselves.

Course offerings are in several departments: Germanic and Slavic Languages and Literatures, Government and Politics, History, Economics, Geography, Philosophy, and Sociology. Student may plan their curriculum so as to emphasize any one of these disciplines, thus preparing for graduate work either in the Russian area or in the discipline.

The Major

Students in the program must meet the general degree requirements of the University and college from which they graduate. They must complete twenty-four hours in Russian language and literature courses selected from among the following equivalent courses: RUSS 101, 102, 201, 202, 301, 302, 303, 321, 322, 401, 402, 403, and 404. In addition, students must complete twenty-four hours in Russian area courses at the 300 level or above. These twenty-four hours must be taken in at least five different departments, if appropriate courses are available, and may include language-literature courses beyond those required above.

It is recommended but not required that the student who plans on doing graduate work complete at least eighteen hours at the 300 level or above (which may include courses applicable to the Russian Area program) in one of the above-mentioned departments. It is also recommended that students who plan on doing graduate work in the social sciences, government and politics, economics, geography, and sociology take at least two courses in statistical methods.

The student's advisor will be the program director or the designate. The student must receive a grade of C or better in all the above-mentioned required courses.

In addition to the courses in Russian language, literature, and culture taught in the Department of Germanic and Slavic Languages and Literatures, the following Russian Area courses are offered. Students should check the Schedule of Classes each semester.

ECON 380—Comparative Economic Systems
ECON 482—Economics of the Soviet Union
GEOG 325—Soviet Union
GVPT 445—Russian Political Thought
GVPT 451—Foreign Policy of the U.S.S.R.
GVPT 481—Government and Administration of the Soviet Union
HIST 305—The Eastern Orthodox Church: Its Cultural History
HIST 340—Eastern Europe Under Communism
HIST 344—The Russian Revolutions of 1917
HIST 424—History of Russia to 1801
HIST 425—History of Russia from 1801-1917
HIST 442—The Soviet Union
HIST 443—Modern Balkan History
HIST 487—Soviet Foreign Relations
PHIL 328B—Studies in the History of Philosophy: Marxist Philosophy
SOCY 474—Soviet Ethnic Issues

The various cooperating departments also offer occasional special courses in the Russian and Soviet field. HIST 237, Russian Civilization, is recommended as a general introduction to the program but does not count toward the fulfillment of the program's requirements.

Course Codes: RUSS

SOCIOLOGY (SOCY)

College of Behavioral and Social Sciences

2108 Art-Sociology Building, 405-6389

Professor and Chair: Falk
Professors: Billingsley* (Family and Community Development), Brown, Clignet, Dager (Emeritus), Finsterbusch, Hage†, Hamilton, Kammeyer, Lejins (Emeritus), Meeker, H. Presser, S. Presser, Ritzer, Robinson, D. Segal†, M. Segal†, J. Teachman
Associate Professors: Favero* (AES), Henkel, Hirzel, J. Hunt, L. Hunt, Landry, Lengermann, McIntyre, Pease, Vanneman
Assistant Professors: Harper, Kahn, Malhotra, Neustadtl
Lecturer: Moghadam

†Distinguished Scholar-Teacher
*Joint appointment with unit indicated.

The Major

Sociology is the scientific study of societies, institutions, organizations, groups, and individuals. Sociological studies range from the social factors that affect individuals, to group processes, and societal change. The strengths of the department are the study of population (demography), military sociology, political economy, social psychology, and the connections among gender, work, and family.

A major in sociology offers (1) a general education especially directed toward understanding the complexities of modern society and its social problems by using basic concepts, research and statistical skills; (2) a broad preparation for various types of professions, occupations, and services dealing with people; and (3) preparation of qualified students for graduate training in sociology, social work, law, and business. Sociology also forms a valuable background for those interested in other fields or majors. Courses in sociology can be used as preparation for careers in government and private research, urban planning, personnel work, human resources management, and many other policy-making and administrative careers.

Areas of Specialization

Undergraduate specializations are available in research methods, social psychology, social demography, social institutions, and inequality. These specializations can often be integrated with a second major. This program versatility and the rich experiential learning possibilities of the Washington metropolitan area combine to make the sociology curriculum a valuable career choice.

Requirements for Major

The following represent new requirements effective Spring, 1991. All students declaring Sociology as their major prior to Spring, 1991 will continue to operate under the old requirements.

Students in sociology must complete 50 hours of departmental requirements, none of which may be taken pass/fail. Thirty-eight of these hours are in sociology coursework, which must be completed with a minimum grade of C in each course; SOCY 100 should be taken in the freshman or sophomore year followed by SOCY 203. Three hours of mathematics (MATH 111 or its equivalent or higher) are required of majors as a prerequisite of SOCY 201. SOCY 202 follows SOCY 201. SOCY 441 (stratification) and one additional upper level methods course should be taken by the second semester of the junior year.

The supporting course requirement for majors is twelve hours of a coherent series of courses from outside of the department that relate to the student's major substantive*** or research interests. These courses need not come from the same department, but at least six hours must be taken at the 400 level. It is strongly recommended that the student work out an appropriate supporting sequence for the particular specialization with the department advisor.

Department of Sociology Requirements

	Semester Credit Hours
CORE/USP Program Requirements	40/43
SOCY 100—Introduction to Sociology	3
SOCY 201*—Introductory Statistics for Sociology	4
SOCY 202—Introduction to Research Methods in Sociology	4
SOCY 203—Sociological Theory	3
SOCY 441—Stratification and Inequality	3
1 additional methodology course**	3
2 Sociology courses at any level	6
4 Sociology courses at 400 level	12
4 supporting courses***	12
Internship (recommended, not required)****	6
USP/CORE Electives*****	24-30/21-27
Total	120

*Three hours of mathematics (MATH 111 or its equivalent, or higher) are required as prerequisite.
**The second required methods course and all supporting courses must be selected from approved lists.
***Courses complementing Sociology specialization must be selected from an approved list and must include at least two courses at the 400 level.
****Students choosing to take internships will reduce their elective credit total by six credits.

Advising

Further information on coursework, internships, the departmental honors program, careers, and other topics may be obtained from the Sociology Undergraduate Advisor, 2108 Art/Sociology Building, 405-6389.

Fieldwork and Internship Opportunities

Although internships are not a requirement for a major, students may wish to consider the internship program offered by the department or through the Experiential Learning Office located in Hornbake Library. Majors may receive up to six credits in SOCY 386 by the combination of working in an internship/volunteer position plus doing some academic project in conjunction with the work experience. A prerequisite of 12 credits in Sociology coursework is also required.

Honors

The objective of the Honors Program in the Department of Sociology is to encourage and recognize superior scholarship by providing an opportunity for interested, capable, and energetic undergraduate students to engage in study in an area of the student's interest under the close supervision of a faculty mentor. The honors program is based upon tutorial study and independent research.

Students who have an overall cumulative grade point average of at least 3.3, a cumulative average of 3.5 in Sociology courses, and who have taken at least 9 credits in Sociology may apply. Transfer students with equivalent academic records at other accredited institutions are also eligible. Admission to the program will be based upon academic performance, and the judgment of the Undergraduate Committee on the degree to which the applicant has sufficient maturity and interest to successfully complete the requirements for graduation with Honors. Further information on the honors program is available from the Sociology Undergraduate Office.

Student Organizations

The Sociology Collective, a group open to all Sociology majors, was organized by a group of interested undergraduates to fill student needs within the Sociology community. The Collective provides information about topics of interest, including department activities, career planning, and relevant changes with the university, and strives to enhance the sense of community within the department. Representatives of the Collective participate on faculty committees within the department and thereby provide the undergraduate perspective on policy issues.

Alpha Kappa Delta is the National Honor Society for Sociology majors. Membership is based on Sociology G.P.A. (3.0) and overall G.P.A. (3.0). Students may apply after they have completed 18 credits in Sociology coursework. This organization's activities focus on providing tutoring services for undergraduates in the core courses.

Survey Research Center
1103 Art-Sociology Building, 314-7831

Director: Stanley Presser

The Survey Research Center was created in 1980 as a special purpose research facility within the behavioral and social sciences. The center specializes in the design of questionnaires and the conduct of surveys for policy purposes, and has the capacity to conduct mini-surveys, survey experiments, and in-depth clinical interviews. The center supports undergraduate and graduate education by providing both technical training and practical experience to students. Also, the center has a strong community service mission through the provision of technical assistance on survey methods and survey design to units of state and local governments, and by conducting surveys on a contract or grant basis for these governmental units.

Course Code: SOCY

SPANISH AND PORTUGUESE LANGUAGES AND LITERATURES (SPAN)

College of Arts and Humanities
2215 Jimenez Hall, 405-6441

Professor and Chair: Sosnowski
Professor Emerita: Nemes
Professors: Aguilar-Mora, Pacheco
Associate Professors: Igel, Lavine, Phaf
Assistant Professors: Benito-Vessels, Butler, Naharro-Calderon, Rabasa, Sanjines
Instructors: Downey-Vanover, Little

The Majors

Undergraduate majors can benefit from a wide range of courses in Spanish and Latin American literature and civilization; technical courses in translation, linguistics, and commercial uses of Spanish. Area studies programs are also available in conjunction with other disciplines to provide the student with a solid knowledge of the Spanish and Latin American worlds.

A grade of at least C is required in all major and supporting area courses.

Language and Literature Major

Courses: SPAN 207, 221, 301-302, 311 or 312, 321-322 or 323-324, 325-326 or 346-347; plus four courses in literature at the 400-level; one course may be taken in Luzo-Brazilian literature, for a total of thirty-nine credits. Nine credits of supporting courses, six of which must be on the 300 or 400 level in a single area other than Spanish, for a combined total of forty-eight credits. Suggested areas are: art, comparative literature, government and politics, history, philosophy, and Portuguese.

Foreign Area Major

Courses: SPAN 207; 301-302; 311 or 312; 315 and 415 or 316 and 317; 321-322 or 323-324; 325-326 or 346-347, plus three courses in literature at the 400-level; one course may be taken in Luzo-Brazilian literature, for a total of thirty nine-credits. Nine credits of supporting courses, six of which must be on the 300 or 400 level in a single area other than Spanish, for a combined total of forty-eight credits. Suggested areas: anthropology, economics, geography, government and politics, history, Portuguese, and sociology.

Translation Option

Courses: SPAN 207; 301-302, 311 or 312; 316 and 317; two courses from 318, 356, 357, 416, 417; 321-322 or 323-324; one course from 325, 326, 346, 347; plus two courses in literature at the 400-level; one course may be taken in Luzo-Brazilian literature, for a total of thirty-nine credits. Nine credits of supporting courses, six of which must be on the 300 or 400 level in a single area other than Spanish, for a combined total of forty-eight credits. Suggested areas: art, comparative literature, government and politics, history, philosophy, and Portuguese.

Business Option*

Courses: SPAN 207; 211; 301-302; 311 or 312; 315 and 415; 316 and 317; 325-326 or 346-347; 422, for a total of thirty-six credits. Twelve credits of supporting courses, six of which must be on the 300 or 400 level in a single area other than Spanish. Suggested areas: business and management, economics, government and politics, history and geography.

Students interested in majoring in a combination of two Romance languages should see the description of the Romance Languages Program, above.

*A double major program (IBFL) exists combining International Business and Spanish.

Honors

The department Honors Program offers qualified students the possibility of working in close contact with a mentor on an original thesis. Honors seminars are primarily for students who have been accepted to the Program, but are open to others with the approval of the Honors Director. Honors students must take 6 credits of Honor Thesis (SPAN 479). Interested students should see the Director of the Spanish Honors Program.

Elementary Honors. SPAN 102H is limited to specially approved candidates who have passed SPAN 101 with high grades, and will allow them to enter 201. SPAN 201 is limited to students who have received high grades in 102, 102H, or 103 or the equivalent. Upon completion of 203H, with the recommendation of the instructor, a student may skip 204.

Lower Division Courses

The elementary and intermediate courses in Spanish and Portuguese consist of three semesters of four credits each (101, 102, 201). The language requirement for the B.A. degree in the College of Arts and Humanities is satisfied by passing 201 or equivalent. Students who wish to enroll in Spanish 101, 102, and 201 must present their high school transcript for proper placement. See the Schedule of Classes for further information. Students may not receive credits for both Spanish 102 and Spanish 103.

Transfer students with college credit have the option of continuing at the next level of study.

Students must take language acquisition courses sequentially, i.e., 101, 102, 201, 202, etc. Once credit has been received in a higher level language acquisition or grammar course, a lower level course may not be taken for credit.

Course Codes: SPAN, PORT

SPECIAL EDUCATION (EDSP)

College of Education
1308 Benjamin Building, 405-6515/4

Professor and Chair: Burke
Professors: Egel, Graham, Hebeler
Associate Professors: Beckman, Cooper, Harris, Kohl, Leone, Lieber, Moon, Neubert, Speece
Assistant Professors: Anderson, Harry
Associate Research Scholar: McLaughlin
Research Associates: Adger, Flonan, MacArthur
Instructors: Aiello, Hudak, Long, Simon
Faculty Research Assistants: Krishnaswami, Warren

The Special Education Department offers an innovative and rigorous undergraduate program which prepares teachers of infants, children, or young adults with disabilities. This program has been nationally recognized for many of its exemplary features. It is a five-year (10 semester, 150 credit hour) professional certification program which graduates students with a Bachelor of Science degree in special education with full special education teacher certification in the State of Maryland and certification reciprocity in twenty-eight other states. Students considering a special education major enroll in courses which meet university and college

requirements while they take supporting coursework designed to provide an understanding of normal human development and basic psychological and sociological principles of human behavior. Special Education students receive specialized training in the following areas: language development; motor development; social-emotional development; normal human behavior; social and educational needs of individuals with disabilities; diagnostic and educational assessment procedures; instructional procedures and materials; curriculum development; classroom and behavior management; effective communication with the parents and families of children with disabilities; community resource planning; and local, state, and federal laws concerning children and youth with disabilities. Graduates of the program are expected to master specific skills in each of these areas.

Requirements for Major

Students interested in majoring in special education must consult a departmental advisor as early as possible after matriculation at the university since the curriculum requires an extensive and sequenced program of studies. Students accepted as Special Education majors take a two-semester sequence of generic special education courses and practicum experiences during the third year (Semesters V and VI). These courses provide the student with a solid foundation in theory and practice related to the education of all children with disabilities across a wide range of ages. During Semester VI, students select one of the following four areas of specialization:

1. Education of the Severely Handicapped (SH)
2. Early Childhood Special Education (EC)
3. Education of the Educationally Handicapped (EH)
4. Secondary and Transition Special Education (ST)

Students select two specialty areas and are accepted into one of their two specialty area choices. Coursework in each of these four areas is designed to develop expertise with a specific special education population. Students work directly with children or youth with disabilities during each semester, leading up to student teaching during the last semester. Specialty area programs include twelve to fifteen hours of electives.

Combined Bachelor's/Master's Program

Selected undergraduate students majoring in special education will be eligible for dual application of credit to both the bachelor's and master's degrees. A student desiring graduate credit should apply for admission to the Graduate School during the last semester of the fourth year. If admitted to the Graduate School, the student may select up to twelve credits (four courses) of specified coursework from the fifth year of the undergraduate program to be applied simultaneously toward the credits required for the master's degree in special education at the University of Maryland. The selected courses may not include field practica or student teaching experiences. Students will be expected to fulfill supplemental requirements in the selected courses. To complete the master's degree, students must fulfill all Graduate School requirements for the degree, with the exception of the selected 400-level courses.

Admission

Prior to formal acceptance as a special education major, all students are required to enroll in a special education introductory course (EDSP 210) which provides a survey of the history and current issues in special education. Upon successful completion of the introductory course and forty-five semester hours of requirements, students apply for formal admission to the professional program of the Department of Special Education by submitting an application with a statement of intent specifying their professional goals. To be accepted as a full special education major, students must fulfill the College of Education requirements for admission to Teacher Education, as well as the following departmental conditions:

1. Completion of coursework indicated below with an asterisk.
2. Admission is competitive beyond the minimum 2.5 grade point average required for consideration.
3. Submission of an application together with a statement of intent specifying the applicant's professional goals.

Admittance will be based on the completion of the required courses, the grade point average, the applicant's experience with persons with disabilities, and the appropriateness and clarity of the professional goal statement. An appeals process has been established for students who do not meet the competitive GPA for admission, but who are applying in connection with special university programs including affirmative action and academic promise.

Advising

The Department of Special Education provides academic advisement through a faculty and a peer advisement program. Special education majors are assigned a faculty advisor, who is carefully matched to the student's area of interest. It is required that all students receive advisement each semester. Students are urged to use the Special Education Advising Center, 1235 Benjamin Building.

Awards

The Department of Special Education Student Service Award is presented annually to the graduating senior who has demonstrated outstanding leadership and service to the Special Education Department.

Student Organizations: The Department of Special Education encourages student participation in extracurricular activities within and outside of the University. Opportunities within the department include the Council for Exceptional Children, and the Student Advisory Board. For more information, stop by the Special Education Advising Center, 1235 Benjamin Building.

Required Courses

CORE Liberal Arts and Science Studies Program Requirements to include the following courses which are departmental requirements: (Consult with a departmental advisor with regard to USP requirements.)

*HIST 156 or HIST 157 (3)
*STAT 100 (3)
*Lab Science (4)
*ENGL Literature (3)
*PSYC 100 (3)
*SOCY 100 or 105 (3)

Other Academic Support Courses

*HESP 202 (3)
HESP 400 (3)
MATH 210 (4)
*EDHD 411 or PSYC 355 (3)
EDHD 460 (3)

Professional Courses

*EDSP 210—Introduction to Special Education (3)
EDHD 300—Human Development and Learning (6)
EDPA 301—Foundations of Education (3)
EDSP 320—Introduction to Assessment in Special Education (3)
EDSP 321—Comparative Approaches to Behavior and Classroom Management in Special Education (3)
EDSP 322—Field Placement in Special Education I (3)
EDSP 443—Assessment and Instructional Design for the Handicapped: Reading and Written Communication Disorders (3)
EDSP 331—Introduction to Curriculum and Instructional Methods in Special Education (3)
EDSP 332—Interdisciplinary Communication in Special Education (3)
EDSP 333—Field Placement in Special Education II (3)

Specialty Area Requirements

The Severely Handicapped Option

EDSP 400—Assessment, Curriculum and Instructional Methods for Students with Severe Handicaps (3)
EDSP 402—Field Placement: Severely Handicapped I (4)
EDSP 403—Physical and Communication Adaptations for Students with Severe Handicaps (3)
EDSP 404—Education of Students with Autism (3)
EDSP 405—Field Placement: Severely Handicapped II (4)
EDSP 410—Community Functioning Skills for Students with Severe Handicaps (3)
EDSP 330—Families and the Education of Handicapped Children (3)
EDSP 420—Developmental and Behavioral Characteristics of Nonhandicapped and Handicapped Infants and Young Children **OR**

EDSP 460—Career/Vocational Education for the Handicapped (3)
EDSP 411—Field Placement: Severely Handicapped III (4)
EDSP 412—Vocational and Transitional Instruction for Students with Severe Handicaps (3)
EDSP 417—Student Teaching: Severely Handicapped (11)
EDSP 418—Seminar: Issues and Research Related to the Instruction of the Severely Handicapped (3)

The Educationally Handicapped Option

EDSP 440—Assessment and Instructional Design for the Educationally Handicapped: Cognitive and Psychosocial Development (3)
EDSP 441—Assessment and Instructional Design for the Educationally Handicapped: Oral Language and Communication Disorders (3)
EDSP 442—Field Placement: Educationally Handicapped I (3)
EDSP 330—Families and the Education of Handicapped Children (3)
EDSP 445—Field Placement: Educationally Handicapped II (4)
EDHD 413—Adolescent Development (3)
EDCI 456—Diagnosis and Treatment of Learning Disabilities in Mathematics (3)
EDSP 446—Instructional Design for the Educationally Handicapped: Functional Living Skills (3)
EDSP 447—Field Placement: Educationally Handicapped III (4)
EDSP 450—Program Management for the Educationally Handicapped (3)
EDSP 457—Student Teaching: Educationally Handicapped (11)
EDSP 458—Seminar: Special Issues and Research Related to the Educationally Handicapped (3)
EDSP 460—Career/Vocational Education for the Handicapped (3)

The Secondary and Transition Special Education Option

EDSP 330—Families and the Education of Handicapped Children (3)
EDSP 460—Career/Vocational Education for the Handicapped (3)
EDSP 461—Field Placement: Career/Vocational I (3)
EDSP 462—Vocational Assessment and Instruction in Special Education (3)
EDSP 463—Field Placement: Career/Vocational II (3)
EDIT 421—Industrial Arts in Special Education (3)
EDCI 456—Diagnosis and Treatment of Learning Disabilities in Mathematics (3)
EDSP 450—Program Management for the Educationally Handicapped (3)
EDSP 465—Field Placement: Career/Vocational III (3)
EDSP 467—Student Teaching: Career/Vocational (11)
EDSP 468—Special Topics Seminar in Career/Vocational Education for the Handicapped (3)
EDSP 464—Secondary and Transition Methods in Special Education (3)
EDSP 446—Instructional Design for the Educationally Handicapped: Functional Living Skills (3)

The Early Childhood Special Education Option

EDSP 420—Developmental and Behavioral Characteristics of Non-Handicapped and Handicapped Infants and Young Children (3)
EDSP 421—Field Placement: Early Childhood Special Education I (3)
EDSP 422—Curriculum and Instruction in Early Childhood Special Education (Moderate to Mild:3-8 yrs) (3)
EDSP 424—Field Placement: Early Childhood Special Education II (4)
EDCI 410—The Child and the Curriculum: Early Childhood (3)
EDSP 330—Families and the Education of Handicapped Children (3)
EDSP 423—Assessment of Preschool Handicapped Children and Infants (3)
EDSP 430—Intervention Techniques and Strategies for Preschool Handicapped Children and Infants (3)
EDSP 431—Field Placement: Early Childhood Special Education III (Severe to Moderate) (4)
EDSP 437—Student Teaching: Early Childhood Special Education (11)
EDSP 438—Seminar: Special Issues in Early Childhood Special Education (3)
EDSP 400—Assessment, Curriculum and Instructional Methods for Students with Severe Handicaps **OR**
EDSP 441—Assessment and Instructional Design for the Handicapped: Oral Language and Communication Disorders (3)

Course Code: EDSP

SPEECH COMMUNICATION (SPCH)

College of Arts and Humanities

2130 Skinner Building, 405-6519

Professor and Chair: Wolvin
Professors: Fink†, Freimuth, Solomon
Associate Professors: Falcione, Gaines, Klumpp, McCaleb
Assistant Professors: Edgar, Goldsmith, Shaw
Lecturer: Niles (p.t.)

†Distinguished Scholar Teacher

Speech Communication takes as its subject matter the history, processes, and effects of human communication through speech and its extensions. The departmental curriculum is designed to provide a liberal education in the arts and sciences of human communication as well as preparation for career opportunities in business, government, education, and related fields of endeavor. Within the curriculum, students may pursue academic programs which emphasize a broad range of disciplinary areas, including interpersonal communication, organizational communication, political communication, health communication, educational communication, cognition and persuasion, rhetorical theory, history of rhetoric, and criticism of public discourse.

The Major

Major requirements include completion of thirty semester hours in Speech Communication and eighteen semester hours in supporting courses. No course with a grade less than C may be used to satisfy major or supporting course requirements.

Requirements for Major

(Thirty semester hours): SPCH 200 or 230, 250, 400, 401, and 402. Fifteen semester hours in SPCH courses, at least twelve of which must at the 300-400 level.

Required Supporting Courses

(Eighteen semester hours): 1. Nine semester hours of cognate courses selected from another discipline complementary to the major. (Selection of cognate courses must be in accordance with guidelines available in the departmental office.) 2. Nine semester hours to develop essential intellectual skills: Three credits in statistical analysis, selected from STAT 100, PSYC 200, SOCY 201, BMGT 230, or EDMS 451. Three credits in critical analysis, selected from ENGL 453, or CMLT 488. Three credits in structural analysis of language, selected from LING 200, HESP 120, ANTH 371, ENGL 384, or ENGL 385. Courses taken to fulfill the supporting course requirement may also be used to satisfy CORE requirements.

Speech Communication offers special opportunities for students interested in co-curricular activities, particularly debate and forensics. Superior students may participate in an Honors Program. Interested students should consult with the Honors Director.

Course Code: SPCH

TEXTILES AND CONSUMER ECONOMICS (TXCE)

This program has been closed. No new applicants are being admitted.

The Department of Textiles and Consumer Economics is devoted to the development and dissemination of knowledge concerning consumers and their near environment. The department offers the Bachelor of Science, Master of Science, and Doctor of Philosophy degrees.

Students in Textiles and Consumer Economics may select one of four majors which offer diverse professional opportunities. Specific careers depend on the major area of emphasis although there is overlapping of career opportunities in some instances reflecting similar course requirements.

Requirements for the Major

To graduate, students must complete the required department and supporting courses with the required grades, Human Ecology requirements and University Studies Program requirements. Students should consult the current Undergraduate Catalog and Department Major Guides and also consult with their faculty advisor. All students must complete a minimum of 120 credit hours to earn a Bachelor of Science degree. Specific requirements for each major (or option) are as follows:

Apparel Design

Majors must complete all required TEXT/CNEC courses with a grade of C or better.

	Semester Credit Hours I	II
Freshman Year		
ENGL 101—Introduction to Writing, if not exempt	3	
TEXT 105—Introduction to Textiles		3
MATH 110 or 115—Elementary Mathematical Models or Pre-Calculus	3	
SOCY 100—Introduction to Sociology	3	
SPCH 100, 107 or 125—Basic Principles of Speech Communication, Technical Speech Communication or Introduction to Interpersonal Speech Communication	3	
DESN 101—Fundamentals of Design		3
TEXT 221—Apparel I		3
PSYC 100—Introduction to Psychology		3
ARTH 200—Art of the Western World I	3	
CORE Requirements		3
Total	15	15
Sophomore Year		
Elective	3	
ARTT 110—Elements of Drawing		3
ARTH 201—Art of the Western World II	3	
ECON 201—Principles of Economics I	3	
ECON 203—Principles of Economics II		3
TEXT 205—Textile Materials and Performance		3
TEXT 222—Apparel II	3	
CMSC 103 or TEXT 235—Introduction to Computing or Computer Applications in Textiles		3
DESN 102—Design II	3	
CORE Requirements		4
Total	15	16
Junior Year		
TEXT 347—History of Costume II	3	
TEXT 305—Textile Materials: Evaluation and Characterization	3	
BGMT 350—Marketing Principles and Organization	3	
TEXT 365—Fashion Merchandising	3	
CORE Requirements	9-10	
Human Ecology Core	6	
ENGL 391 or 393 or 394—Advanced Composition or Technical Writing or Business Writing	3	
Total	30-31	
Senior Year		
TEXT 420—Apparel Design; Draping	3	
TEXT 441—Clothing and Human Behavior	3	
TEXT 375—Economics of Textile and Apparel Industry	3	
TEXT 425—Apparel Design; Advanced Problems	3	
TEXT 430—Portfolio Presentation	3	
TEXT 435—Woven Fabric Structure and Design	3	
CORE Requirements	9	
Elective	1-2	
Total	28-29	

Textile Marketing\Fashion Merchandising

Students in the Textile Marketing\Fashion Merchandising program must complete the common requirements of the program. In addition, they must select either the textile marketing or the fashion merchandising option and complete the courses specified for the option selected. Textile marketing option: CHEM 103, CHEM 104, TEXT 400, TEXT 452 and TEXT 470. Fashion merchandising option: CHEM 103, CHEM 104, TEXT 221, and TEXT 365.

Majors must complete MATH 110 (or MATH 115), ECON 201, ECON 203, and all required TEXT\CNEC courses and BMGT 350 with a grade of C or better. Majors must complete 9 additional credits in upper-level BMGT courses and earn an average grade of "C" or better.

	Semester Credit Hours I	II
Freshman Year		
ENGL 101—Introduction to Writing, if not exempt	3	
TEXT 105—Introduction to Textiles		3
MATH 110 or 115—Elementary Mathematical Models or Pre-Calculus		3
SOCY 100—Introduction to Sociology	3	
SPCH 100, 107 or 125—Basic Principles of Speech Communication, Technical Speech Communication or Introduction to Interpersonal Speech Communication	3	
DESN 101—Fundamentals of Design or ARTT 100—Elements of Design	3	
PSYC 100—Introduction to Psychology		3
CORE Requirements	3	6
Total	15	15
Sophomore Year		
CHEM 103—General Chemistry I	4	
CHEM 104—Fundamentals of Organic and Biochemistry		4
CORE Requirements	3	3
ECON 201—Principles of Economics I	3	
ECON 203—Principles of Economics II		3
TEXT 205—Textiles Materials and Performance	3	
Human Ecology Core		3
TEXT 221—Apparel I or Elective* (See option selected)	3	
Elective		3
Total	16	16
Junior Year		
Electives	3	
BMGT 350—Marketing Principles and Organization	3	
TEXT 355—Textile Furnishings	3	
TEXT 400—Research Methods or Department Requirement* (See option selected)	3	
Human Ecology Core	3	
TEXT 365—Fashion Merchandising or Department Requirement* (See option selected)	3	
BMGT Support Area**	3	
TEXT 305—Textile Materials: Evaluation and Characterization	3	
ENGL 391, 393 OR 394—Advanced Composition, Technical Writing or Business Writing	3	
CORE Requirements	3	
Total	30	
Senior Year		
TEXT 441—Clothing and Human Behavior or CNEC 437—Consumer Behavior	3	
TEXT 375—Economics of the Textile and Apparel Industry	3	
CORE Requirements	6	
TEXT 452—Textile Science: Chemical Structure and Properties of Fibers or Department Requirement* (See option selected)	3	
BMGT Support Area**	6	
TEXT 470—Textile and Apparel Marketing or Department Requirement* (See option selected)	3	
Electives	4	
Total	28	

*Department Requirement: Select from ALL CNEC and TEXT courses numbered 300 or above.

**BMGT Support Area: Select from BMGT 353, 354, 360, 364, 372, 380, 392, 453, 454, 456.

Textiles

Majors must complete ALL required TEXT/CNEC courses with a grade of C or better.

	Semester Credit Hours I	II
Freshman Year		
ENGL 101—Introduction to Writing, if not exempt	3	
TEXT 105—Introduction to Textiles	3	
MATH 115—Pre-Calculus	3	
SOCY 100—Introduction to Sociology		3

SPCH 110, 107, or 125—Basic Principles of Speech Communication, Technical Speech Communication or Introduction to Interpersonal Speech Communication		3
Human Ecology Core		3
TEXT 205—Textile Materials and Performance		3
CHEM 103—General Chemistry I	4	
CHEM 113—General Chemistry II		4
PSYC 100—Introduction to Psychology	3	
Total	16	16
Sophomore Year		
CORE Requirements	3	6
TEXT 305—Textile Materials: Evaluation and Characterization	3	
CHEM 233, 243, Organic Chemistry I, II	4	4
MATH 140—Calculus I	4	
MATH 141—Calculus II		4
Total	14	14
Junior Year		
ECON 201 and 203—Principles of Economics I and II	6	
PHYS 141 or 121—Principles of Physics or Fundamentals of Physics I	4	
PHYS 142 or 122—Principles of Physics or Fundamentals of Physics II	4	
TEXT 452—Textile Science: Chemical Structure and Properties of Fibers	3	
Human Ecology Core	6	
CORE Requirements	6	
Elective	3	
Total	32	
Senior Year		
ENGL 391 or 393—Advanced Composition or Technical Writing*	3	
BMGT 350—Marketing Principles and Organization	3	
TEXT 454—Textile Science: Finishes or TEXT 456—Textile Science: Dyes and Dye Applications	3	
TEXT 375—Economics of the Textile and Apparel Industry	3	
TEXT 400—Research Methods	3	
CORE Requirements	6	
Electives	7	
Total	28	

*ENGL 393 preferred.

Consumer Economics

Majors must complete MATH 115, MATH 220, ECON 201, ECON 203, ALL required CNEC/TEXT courses and Support Area courses with a grade of C or better. ECON 305 and ECON 306 MUST be completed with an average grade of C.

	Semester Credit Hours I	II
Freshman Year		
ENGL 101—Introduction to Writing, if not exempt	3	
MATH 115—Pre-Calculus		3
SOCY 100—Introduction to Sociology	3	
SPCH 100, 107 or 125—Basic Principles of Speech Communication, Technical Speech Communication or Introduction to Interpersonal Speech Communication		3
Human Ecology Core		3
CNEC 100—Introduction to Consumer Economics	3	
CORE Requirements	3	3
PSYC 100—Introduction to Psychology	3	
Elective		3
Total	15	15
Sophomore Year		
CORE Requirements	7	6-7
ECON 201 and 203—Principles of Economics I and II	3	3
MATH 220 or 140—Elementary Calculus I or Calculus	3-4	
MATH 221 or 141—Elementary Calculus II or Calculus II or Elective		3-4
Elective		3
Human Ecology Core	3	
Total	16-17	15-17
Junior Year		
CNEC 310—Consumer Economics and Public Policy	3	
ENGL 391, 393 or 394—Advanced Composition, Technical Writing or Business Writing	3	
CNEC 431—The Consumer and the Law	3	
Support Area Requirement*	6	
BMGT 350—Marketing Principles and Organization	3	
ECON 305—Intermediate Macroeconomic Theory and	3	
ECON 306—Intermediate Microeconomic Theory	3	
Elective	3	
CORE Requirements	3	
Total	30	
Senior Year		
CNEC 400—Research Methods	3	
CNEC 437—Consumer Behavior	3	
CNEC 435—Economics of Consumption	3	
CORE Requirements	6	
CNEC 410—Consumer Finance	3	
Support Area Requirement*	3	
Electives	5-8	
Total	26-29	

*Majors must select one of four identified Support Areas. These areas are as follows: Product Information, Marketing, Finance or Economics. Majors should check with the Department to obtain specific course requirements for each identified support area.

Advising

The department has mandatory advising for ALL majors. Majors are assigned faculty advisors and MUST discuss their program of study with their advisor each semester. Majors should check with the Office of Academic Affairs if they do not know the name of their faculty advisor.

Honors

A department Honors Program permits outstanding undergraduates to explore individually a program of work which will strengthen their undergraduate program and their professional interests. Students must have at least a "B" average to be considered. Students in the honors program participate in a junior honors seminar and present a senior thesis. Students completing this program graduate with department honors.

Internship Opportunities

An internship program is available to all students majoring in the Department of Textiles and Consumer Economics during their senior year. Students must apply for admission to the internship program, including the retailing internship, in the second semester of their junior year.

Course Codes: TEXT, CNEC

THEATRE (THET)

College of Arts and Humanities

1146 Tawes Fine Arts Building, 405-6676

Chair: Meersman
Professors: Gillespie, Meersman
Associate Professor: Blum, Elam, Hébert, O'Leary
Assistant Professors: Anderson, Coustant, Huang, Patterson, Schuler, Ufema
Lecturers: Donnelly, Kriebs, Wagner
Emeritus: Pugliese

The department curricula lead to the Bachelor of Arts degree, and permit the student to develop an emphasis in theatre design or performance. In cooperation with the Department of Curriculum and Instruction and the Department of Speech, an opportunity for teacher certification in speech and drama is provided.

The curricula are designed to provide through the study of theatre history, design, performance, and production: 1) a liberal education through the study of theatre; 2) preparation for various opportunities in the performing arts.

The Major

Major Requirements are forty-two hours of coursework in theatre, exclusive of those courses taken to satisfy college and university requirements. Of the forty-two hours, at least twenty-one must be upper level (300-400 series). No course with a grade less than C may be used to satisfy major or supporting area requirements.

Requirements for Major

Required core courses for all majors are: THET 110, 111, 120, 170, 330, 479, 480, 490, 491.

Design Emphasis: THET 273, 375, 476, 418, plus additional courses in theatre to make the minimum.

Performing Emphasis: THET 221, 320, 420 or 430, 474 or approved Technical/Design course, plus additional courses in theatre to make the minimum.

Supporting courses for the Design and Performing Emphases include one from each of the following: ENGL 403, 404, or 405; ENGL 434 or 454; DANC 100 (or 210 or 310 for design emphasis); MUSC 100 or 130; any ARTH or ARTT course approved by the departmental advisor.

Advising

Advising is required. Students are responsible for checking advisee assignments posted on faculty office doors and bulletin boards.

Honors

The Theatre department offers an honors program. Contact the Honors Program Advisor for information.

Financial Aid

Scholarships and financial assistance may be awarded to incoming students through a number of Creative and Performing Arts Scholarships and the Theatre Patrons Scholarships. Other scholarships and assistantships are awarded yearly to continuing students. For further information, contact the Theatre Awards Program Advisor.

The department presents a number of University Theatre (UT) productions each year. Students also comprise the Administrative Council for Theater (ACT).

Course Code: THET

TRANSPORTATION, BUSINESS, AND PUBLIC POLICY

For information, consult the College of Business and Management entry.

URBAN STUDIES AND PLANNING PROGRAM*

School of Architecture

1117 Lefrak Hall, 405-6790

Chair: Howland
Professors: Baum, Hanna, Levin
Associate Professors: Brower, Chen
Lecturer: Cohen
Affiliate Faculty: Dupuy, Fogle, Francescato

The Major

The Urban Studies and Planning Program offers a program of study leading to the Bachelor of Arts degree in Urban Studies. The program is designed to encourage students either (1) to direct their learning toward planning and management careers in metropolitan-area organizations, or (2) to study urbanization processes and methods as a means toward earning a general education. The undergraduate urban studies and planning program is built on several introductory and methods courses that examine the city in its metropolitan, interregional, national, and international policy contexts. The problems of planning and management of the metropolis are stressed. Students are encouraged by the multidisciplinary urban studies and planning faculty to take advantage of the rich and extensive cross-departmental resources at College Park and are expected to select an urban-related specialization from another discipline. Inasmuch as the department exists to serve the planning and management personnel and research needs of metropolitan organizations in the non-profit, for-profit, and government sectors, career guidance and advice on job placement have a high priority. Students are provided with advice in finding available vacancies, with resume writing and interview preparation. Urban Studies majors are prepared to enter the professional arena or to continue with advanced study.

Each year the department sponsors the Lefrak lectures. This lecture series features highly-reputed scholars and practitioners in urban planning or urban policy formulation issues of the information age. A feature of the series is to expand our understanding of urbanization driven by job creation in high-technology manufacturing and higher-level services.

Requirements for Major

Urban Studies majors must complete thirty-nine semester hours of Departmental requirements with a minimum grade of C in each course. Fifteen of these hours must be core Urban Studies courses, including a Senior Capstone course in which students will write a major paper on an urban topic. Fifteen more must be in an urban-related focus in another department, such as Afro-American Studies, Architecture, Economics, Geography, Government and Politics, or Sociology. Six credits must be in an urban specialization, including one upper division course, in the department or elsewhere. Three credits are a statistics and methods course, preferably in the department of disciplinary focus.

Urban Studies Requirements

	Semester Credit Hours
Required URSP Core Courses	15
URSP 100	
URSP 240	
URSP 320	
URSP 401	
URSP 402	
Disciplinary Focus (5 classes)	15
Urban Specialization (2 classes)	6
Statistics and Methods	3
Total	39

Advising

Prior to each pre-registration and registration, each Urban Studies major is expected to obtain advice from an Institute advisor. The undergraduate advisor is located in 1213 Lefrak Hall, 405-6799.

Honors

For information on the Urban Studies Honors Program, contact the Undergraduate Advisor, 1213 LeFrak Hall, 405-6799.

Course Code: URSP

*The undergraduate program is being eliminated and is accepting no new majors.

WOMEN'S STUDIES PROGRAM (WMST)

College of Arts and Humanities

1115 Mill Building, 405-6878

Professor and Director: Beck
Professors: Dill, Rosenfelt
Associate Professors: Bolles, Moses
Assistant Professors: Kim, King
Lecturer: Pratt
Affiliate Faculty: Harley, Williams (Afro-American Studies); Diner (American Studies); Withers (Art); Doherty, Hallett, Stehle (Classics); Gillespie (Communication Arts and Theater); Lanser, Peterson (Comparative

Literature); Fassinger (Counseling and Personnel Services); Heidelbach (Curriculum and Instruction); Beauchamp, Donawerth, Kauffman, Leonardi, Smith, Upton, Washington (English); Leslie (Family and Community Development); Hage, Mossman (French and Italian); Frederiksen, Strauch (Germanic and Slavic Languages); McCarrick (Government and Politics); Gullickson (History); Gips (Housing and Design); Tyler (Human Development); Beasley, Grunig (Journalism); Robertson (Music); Fullinwider (Philosophy and Public Policy); Hult (Physical Education); Coustou, (RTVF); Hunt, McIntyre, Presser, Segal (Sociology); Solomon (Speech and Communication); Schuler (Theater).

The Women's Studies Program is an interdisciplinary academic program designed to examine the historical contributions made by women, reexamine and reinterpret existing data about women, and introduce students to the methodology of feminist scholarship. The program offers interdisciplinary core courses on women, encourages the offering of courses on women in other disciplines, and promotes the discovery of new knowledge about women. Women's Studies courses challenge students to question traditional knowledge about women and men and to examine differences among women. Students gain an understanding of and respect for differences in human lives as they encounter issues of diversity in the classroom: age, ability, class, ethnicity, race, religion, and sexual preference.

The Certificate Program

The Women's Studies Certificate Program consists of an integrated, interdisciplinary curriculum on women that is designed to supplement a student's major.

Requirements for Certificate

Certificate requirements are under review—consult the Program Office for updated information.

The qualify for a Certificate in Women's Studies, a student will be required to earn twenty-one(21) credits in Women's Studies courses, nine of which must be at the 300/400 level. No more than 3 credit hours of special topics courses may be counted toward the Certificate. No more than 9 credit hours which are applied toward a major may be included in the Certificate Program. No more than 9 credit hours may be taken at institutions other than UMCP. Each student must obtain a grade of C or better in each course that is to be counted toward the Certificate. Of the twenty-one credits, courses must be distributed as follows:

1. A core of nine (9) credit hours from the following WMST courses:
   WMST 200—Introduction to Women's Studies: Women and Society (3) OR
   WMST 250—Introduction to Women's Studies: Women, Art, and Culture (3)
   WMST 400—Theories of Feminism (3)
   WMST 490—Senior Seminar: Feminist Reconceptualizations (3)
2. At least one course from each of the three distributive areas listed below. Two of these courses must be from departments other than Women's Studies. At least one course must be identified as adding a multi-cultural dimension.

   Area I: Arts and Literature
   ARTH 466—Feminist Perspectives on Women in Art
   ENGL 250—Women in Literature
   ENGL 348—Special Topics in Literature by Women
   ENGL 408—Special Topics in Literature by Women before 1800
   ENGL 444—Feminist Theory and Literature
   ENGL 448—Special Topics in Literature by Women of Color*
   ENGL 458—Special Topics in Literature by Women After 1800
   FREN 241—Women of French Expression in Translation
   FREN 478—French Women Writers in Translation
   GERM 281—Women in German Literature and Society
   GERM 489—Women in German Literature
   MUSC 448—Special Topics: Women and Music*
   PORT 478C—Women as Authors and Characters in Brazilian Literature*
   RTVF 462—African-American Women Filmmakers*
   WMST 250—Introduction to Women's Studies: Women, Art, and Culture

   Area II: Historical Perspectives
   AASP 498W—Black Women in America*
   AMST 418J—Women and Family in American Life
   CLAS 320—Women in Classical Antiquity
   HIST 210—American Women to 1880
   HIST 211—American Women 1880 to Present
   HIST 301—Women and Industrial Development
   HIST 309—Proseminar in the History of Women
   HIST 318—Women in the Middle East*
   HIST 419C—Redefining Gender in the US: 1880-1935
   HIST 458—Selected Topics in Women's History
   HIST 618—Readings in the History of Women
   KNES 492—History of the American Sportswoman: Institutions and Issues

   Area III: Social and Natural Sciences
   AASP 498F—Women and Work*
   CNEC 312—Economics of the Family
   CRIM 498—Women and Crime
   FMCD 430—Gender Role Development in the Family
   GVPT 436—Legal Status of Women
   HLTH 471—Women's Health
   JOUR 452—Women and the Media
   PHED 451—Sport and the American Woman
   PSYC 336—Psychology of Women
   SOCY 325—Sociology of Sex Roles
   SOCY 425—Sex Roles and Social Institutions
   SOCY 498W—Women in the Military
   SPCH 324—Communication and Sex Roles
   WMST 200—Introduction to Women's Studies: Women and Society
   WMST 498—Asian and Asian-American Women*
   WMST 498—Women in the African Diaspora*
   ZOOL 313—Women and Science
   ZOOL 326—Biology of Reproduction

   *Fulfills Women's Studies Multi-Cultural Requirement

3. The remaining courses may be chosen from any of the three distributive areas, or from among any of the WMST courses including WMST 498—Special Topics in Women's Studies and WMST 499—Independent Study. The Women's Studies Program also provides students with opportunities for co-curricular activities. In the past, students have supported their coursework with practical experience working with legal defense funds, rape crisis centers, battered women's shelters, feminist journals, and on Capitol Hill, as well as in the classroom applying feminist methodology to teaching strategies.

Admission

Any student in good academic standing at the University of Maryland at College Park may enroll in the Certificate Program by declaring his or her intentions to the Women's Studies undergraduate advisor.

Advising

Students should meet with an advisor in order to plan individual programs. Advising is available during regular office hours with appointments and on a walk-in basis in 1125 Mill Building.

Students may also earn an undergraduate major in Women's Studies by designing a major in consultation with the Assistant Dean for Undergraduate Studies and a member of the Women's Studies faculty.

Course Code: WMST

ZOOLOGY (ZOOL)

College of Life Sciences

2227 Zoology-Psychology Building, 405-6904

Professor and Chair: Popper
Professors: Carter-Porges, Clark, Colombini, Gill, Highton, Levitan†, Pierce, Reaka-Kudla, Sebens
Associate Professors: Ades, Barnett, Borgia, Cohen, Goode, Higgins, Imberski, Inouye, Linder, Palmer, Small, Wilkinson
Assistant Professors: Carr, Chao, Dietz, Olek, Payne, Stephan, Tanda
Instructors: Kent, Piper, Spalding
Adjunct Professors: Allan, Kleiman, Manning, Morton, O'Brien, Potter, Smith-Gill, Vermeij
Adjunct Associate Professors: Brietburg, Hines, Platt, Wemmer
Adjunct Assistant Professor: Braun
Director Undergraduate Office: Presson

†Distinguished Scholar-Teacher

The Zoology specialization is designed to give each student an appreciation of the diversity of programs studied by zoologists and an appreciation of the nature of observation and experimentation appropriate to investigations within these fields.

Requirements for Specialization

See Biological Sciences in this catalog and Zoology advisor for specific program requirements.

Advising

Advising is mandatory. Appointments can be scheduled through the Undergraduate Office, 405-6904.

Honors

The Department of Zoology Honors Program, directed by Dr. Margaret Palmer, offers highly motivated and academically qualified students the opportunity to work closely with a faculty mentor on an original research project. Information on this program and additional information on the Zoology program may be obtained from the Undergraduate Office, 2227 Zoology-Psychology Building, 405-6904.

Student Organization

Zoology Undergraduate Student Committee (ZUSC) promotes interactions with the faculty, provides information about departmental services, opportunities and events and sponsors a variety of educational and social activities. Interested students may contact ZUSC by stopping by the ZUSC office, 2230 Zoology-Psychology Building, 405-6904.

Course Code: ZOOL

CAMPUS-WIDE PROGRAMS

Air Force Aerospace Studies Program (ROTC)

2132 Cole Student Activities Bldg., 314-3242

Director: Rensler
Assistant Professors: Lausman, Miller, Williams

The Air Force Reserve Officers Training Corps (ROTC) provides two programs for college men and women to earn a commission as a Second Lieutenant in the United States Air Force while completing their University degree requirements. To enter the AFROTC program, students should inform their advisor, and register for classes in the same manner as for other courses.

Four-Year Program

This program is composed of a General Military Course (GMC) and a Professional Officer Course (POC). The first two years (GMC), normally for freshmen and sophomores, give a general introduction to the Air Force and the various career fields. Students enrolled in the GMC program incur no obligation and may elect to discontinue the program at any time. The final two years (POC) concentrate on the development of leadership skills and the study of United States defense policy. Students must compete for acceptance into the POC. All students enrolled in the last two years of the program receive approximately $1,000 annually, tax free.

Students in the four-year program who successfully complete the first two years of the program and are accepted into the POC program must attend four weeks of field training at a designated Air Force base during the summer after completing their sophomore year of college.

Two-Year Program

This program is normally offered to prospective juniors but may be taken by seniors and graduate students. The academic requirements for this program are identical to the final two years of the four-year program. During the summer preceding entry into the program, all candidates must attend 6 weeks of field training at a designated Air Force base. Students should start the application process in October for entry 11 months later.

The Curriculum

General Military Course (GMC)

Freshman year—ARSC 100 (Fall) and ARSC 101 (Spring). These courses introduce the student to the roles of the Department of Defense and the U.S. Air Force in the contemporary world. Each one-credit course consists of one hour of academic class and two hours of Leadership Laboratory each week.

Sophomore year—ARSC 200 (Fall) and ARSC 201 (Spring). These courses provide an historical review of air power employment in military and nonmilitary operations in support of national objectives and a look at the evolution of air power concepts and doctrine. Each one-credit course consists of one hour of academic class and two hours of Leadership Laboratory each week.

Professional Officers Course (POC)

Junior year—ARSC 310 (Fall) and ARSC 311 (Spring).

Senior year—ARSC 320 (Fall) and ARSC 321 (Spring).

All Aerospace courses are open to any university student for credit whether or not he or she in the AFROTC Program. Students who are not in the AFROTC Program do not attend the Leadership Laboratory.

General Requirements for Acceptance into the POC

The student must complete the General Military Course and the field training session, pass the Air Force Officer Qualifying Test, be physically qualified, be in good academic standing, meet age requirements and be a U.S. citizen. Successful completion of the Professional Officer Course and a bachelor's degree or higher are prerequisites for a commission as a Second Lieutenant in the United States Air Force. Additional information may be obtained by telephoning the Office of Aerospace Studies, (301) 314-3242.

Scholarships

The AFROTC College Scholarship Program provides eight, six, and four semester scholarships to students on a competitive basis. Scholarships are currently available in virtually any field and are based on merit. Those selected receive tuition, lab expenses, incidental fees, and book allowance plus a non-taxable allowance of $100 monthly.

Any student accepted by the University of Maryland may apply for these scholarships. AFROTC membership is required to receive an AFROTC scholarship.

AFROTC Awards

AFROTC cadets are eligible for numerous local, regional, and national awards. Many of these awards include monetary assistance for school.

Course Code: ARSC

STUDY ABROAD PROGRAMS

3125 Mitchell Bldg., 314-7746

Coordinator: Rick Weaver

The goal of the Study Abroad Office is to enable students to incorporate a summer, semester, or year abroad into their degree program at Maryland. Study abroad increases awareness of other cultures and languages while providing a comparative international perspective. Many students find study abroad essential for their major or career plans. Others view it as part of their liberal arts education.

Advising and Information

The Study Abroad Office provides handouts and advising on the wide variety of programs available. A small library provides information on

programs offered by other universities. The office assists students in obtaining credit for their experience abroad.

Maryland Study Abroad Semester/Year Programs

Denmark's International Study Program: Maryland acts as a coordinator for DIS in Copenhagen, which offers liberal arts and business subjects taught in English.

Semester in Israel: From January to May students learn Hebrew and take courses in Jewish and Israeli studies taught in English by faculty members at Tel Aviv University.

Study in London: The curriculum consists of courses in the humanities, business, and the social sciences, which focus on Britain. Students are housed with families or in flats to increase their immersion in British life.

German-Engineering: 2 month intensive technical German followed by 4 months paid internship in Germany.

Study in Brazil: Offers a summer and fall semester at the Catholic University of Rio to take regular university courses offered in Portuguese.

Maryland in Mexico City: Offers Spanish language and Latin American studies courses.

Maryland-in-Nice: Offers French language courses for foreigners and regular courses at the University of Nice for students with sufficient French language background.

Summer Programs

Architecture Abroad: The School of Architecture sponsors various summer study programs which allow students at an advanced undergraduate and graduate level to deal creatively with architectural issues in a foreign environment. Program locations vary, but include Tunisia, Turkey, and Western Europe.

Summer in Kassel: The Department of Germanic and Slavic Languages and Literature sponsors a five-week intensive language and culture program in Kassel, Germany.

Summer in Madrid: The Department of Spanish and Portuguese sponsors a five-week intensive language and culture program in Madrid, Spain.

Exchanges

The Study Abroad Office administers reciprocal exchanges with specific universities overseas. These exchanges are often related to academic departments and require extensive language or academic background. All the exchanges require at least a 3.0 grade point average. Exchanges are available with the following British Universities: University of Kent for Government and Politics majors; University of Sheffield for English majors and American Studies majors; University of Lancaster for Math majors; University of Bristol for Philosophy majors; University of Surrey for Sociology majors; and University of Liverpool for History majors. In Japan, Keio University in intensive Japanese. In West Germany, the University of Bremen, the Free University of Berlin, and the Gesamthochschule Kassel. In Austria, the University of Vienna.

UNDERGRADUATE STUDIES

University Honors Program

Anne Arundel Hall, 405-6771/3

Director: Lawrence

The University Honors Program offers academically-talented students special educational and cultural resources within a great metropolitan research university. Students combine Honors course work with studies in their major to enhance their total educational experience. First- and second-year undergraduates broaden their intellectual horizons in special, some interdisciplinary, Honors seminars and Honors versions of regular courses in the arts and sciences. Juniors and seniors may apply to departmental or college Honors programs that give them the opportunity to work with faculty mentors on independent research projects. Students who prefer to propose their own individually-designed research programs may do so.

Honors programs offer challenging academic experiences characterized by small classes, active student participation, and an Honors faculty who encourage critical thinking and discussion. Individually guided research, field experience, and independent study are also important aspects of Honors work.

The Honors community extends beyond the classroom with an exciting range of extracurricular social and educational activities. An Honors student association oversees UHP's student-run committees, lecture series, social and cultural events, newsletter, and literary magazine. Anne Arundel Hall, the Honors Living/Learning Center, houses the UHP administrative offices, seminar rooms, 2 computer labs, and the Honors Lounge, as well as providing housing for some Honors students.

The UHP seeks bright, intellectually curious students, who will thrive in a challenging academic environment. Students may apply for admission to the UHP either as entering first-year students or as transfer students with fewer than 45 credits. Admission to the University Honors Program is by invitation.

For more information, please write to Director, University Honors Program, University of Maryland, College Park, MD 20742, or call (301) 405-6771.

Individual Studies Program (IVSP)

2130 Mitchell Building, 405-9355

Assistant Dean for Undergraduate Studies: Oh

The Individual Studies Program provides an opportunity for students to create and complete individualized majors. To be accepted into the program, a student must:

1) have a clearly-defined academic goal which cannot reasonably be satisfied in an existing curriculum at College Park;
2) be able to design, with faculty assistance, a sequence of courses and other learning experiences which is judged to have adequate substance for the awarding of a degree in the special field of study; and
3) have at least a 2.0 GPA and earn a minimum grade of "C" in designated major courses.

Most IVSP majors are either a form of "area study" utilizing offerings from many departments, or a clear combination of two disciplines. Many include internships or independent study projects in the program. All work is done under the supervision of a faculty advisor.

Applicants are required to write a detailed prospectus outlining their proposed program of study. They must meet the general education requirements according to year of entry. The process of applying often involves considerable consultation and several drafts of a prospectus, so it should be begun as early as possible. Students may be admitted to the Individual Studies Program after completion of 30 college credits and must be officially approved by the Individual Studies Faculty Review Committee prior to the final 30 credits. Individual Studies programs must be approved before students can declare Individual Studies as a major.

Individual Studies provides three courses specifically for its majors: IVSP 317, a one-credit course graded Satisfactory/Fail and taken as recommended by the student's advisor; IVSP 318, an independent study course which students can use for a variety of out-of-class internship and research opportunities (a variable-credit course, it may be taken for a total of nine credits towards the degree); and IVSP 420, Senior Paper Project, required for all students during the final semester. The project is evaluated by three faculty members.

More information on requirements and procedures is available from the Office of the Dean for Undergraduate Studies, Mitchell Building, 405-9355. After reading that material, arrange a meeting with the Assistant Dean for Undergraduate Studies to discuss ideas informally and to plan the next steps.

Course Code Prefix: IVSP

Pre-Professional Programs

Health Professions Advising
3103 Turner Laboratory, 405-2793
Advisors: Bradley, Stewart

Pre-Law Advising
3103 Turner Laboratory, 314-8418
Advisor: Hotten

General Information

Pre-professional programs are designed to provide the necessary academic foundation required for entrance into professional schools. Some require two or three years of pre-professional study before admission to professional school. Others normally require completion of a bachelor's degree. Five programs, for which completion of a bachelor's degree is NOT a normal prerequisite, may be declared as the official undergraduate academic major: pre-dental hygiene, pre-medical and research technology, pre-nursing, pre-pharmacy, and pre-physical therapy.

In contrast, seven programs, for which a bachelor's degree IS a normal prerequisite, are advisory ONLY and these cannot be declared as the official undergraduate academic major. These include: pre-dentistry, pre-law, pre-medicine, pre-optometry, pre-osteopathy, and pre-podiatry. Students interested in such programs may choose from a wide variety of academic majors across campus. The pre-professional advisor can provide guidance concerning the choice of major.

Successful completion of a pre-professional program at College Park does not guarantee admission to any professional school. Each professional school has its own admissions requirements and criteria, which may include grade point average in undergraduate courses, scores on admissions tests, a personal interview, faculty recommendations, and an evaluation from the pre-professional advisor. For admissions requirements, the student is urged to study the catalog of each professional school.

All students are welcome to use the Reading Room for information on careers and on professional schools across the country.

Pre-Dental Hygiene

Advisor: Stewart

College Park students may prepare themselves not only for entrance into the UMAB Dental Hygiene Program but also for entrance into dental hygiene programs at other colleges and universities. To do this efficiently, students should obtain program information when first entering college so that requirements can be taken in normal sequence. Information for the University of Maryland Dental Hygiene Program is available at the advising office, 3103 Turner Lab.

The Dental School of the University of Maryland, located in Baltimore (UMAB), offers a baccalaureate degree program in dental hygiene, as well as a post-certificate program for registered dental hygienists who have completed a two-year accredited dental hygiene program and are interested in completing the requirements for a baccalaureate degree. Completion of a two-year pre-professional curriculum is required before admission to UMAB for the two professional years.

Preprofessional curriculum for UMCP students:

	Semester Credit Hours
Freshman Year	
ENGL 101—Introduction to Writing	3
BIOL 105—Principles of Biology I	4
CHEM 103—General Chemistry I	4
CHEM 104—Fundamentals of Organic and Biochemistry	4
PSYC 100—Introduction to Psychology	3
SOCY 100 or SOCY 105—Introduction to Sociology or Introduction to Contemporary Social Problems	3
MATH 110 or 115—Elementary Mathematical Models or Precalculus	3
SPCH 100 or 107—Basic Principles of Speech Communication or Technical Speech Communication	3
Elective	3
Sophomore Year	
ZOOL 201 and 202—Human Anatomy & Physiology I, II	4,4
MICB 200—General Microbiology	4
NUTR 200—Nutrition for Health Services	3
ENGL 291 (or 391 for juniors)	3
Social Sciences	6
Humanities	3
Statistics	3

Application and Admission

High school students who wish to enroll in the pre-dental hygiene curriculum at College Park should request applications directly from the Admissions Office, The University of Maryland, College Park, MD 20742. It is recommended that those preparing for a baccalaureate degree program in dental hygiene pursue an academic program in high school which includes biology, chemistry, math, and physics.

Pre-dental hygiene students should begin the application process for professional school in fall of the sophomore year. UMAB applications and instructions are available in the advising office. Enrollment as a pre-dental hygiene student or as a registered dental hygienist does not guarantee admission to the Dental Hygiene Program on the Baltimore City campus (UMAB).

Further Information

At College Park contact the Dental Hygiene Advisor, 3103 Turner Laboratory, The University of Maryland, College Park, MD 20742, (301) 405-2793. In Baltimore, contact the Office of Recruitment and Admissions, University of Maryland School of Dentistry, 666 W. Baltimore Street, Baltimore, MD 21201, (410) 706-7472.

Pre-Dentistry

Advisor: Bradley

The pre-professional program for pre-dental students is a program of advising for students preparing to apply to dental school. The advice is based on requirements and recommendations of American dental schools and the requirements for a baccalaureate degree at College Park.

The recommendations made during advising are meant to prepare the student to take the Dental Admissions Test (DAT) in the spring of the junior year. Application to dental school is made during the summer-fall of the senior year. In addition to faculty letters of recommendation, most admissions committees request or require an evaluation from the student's pre-dental advisor. It is important, therefore, for the student to contact the pre-dental advisor early in the academic career and to become familiar with the proper procedures necessary in the evaluation and application process.

For more information on the pre-dental advising program, contact the Pre-dental Advisor, 3103 Turner Laboratory, University of Maryland, College Park, MD 20742, (301) 405-2793.

There are two ways to prepare for admission to dental school: a four-year program is preferable, but a three-year program is possible.

Four-Year Baccalaureate Program

Most pre-dental students at College Park complete a four-year undergraduate degree prior to entrance into dental school. Students are encouraged to pursue a diversified curriculum, balancing humanities courses with science and mathematics courses. No specific major is required, favored, or preferred by dental school admissions committees.

The four-year student will plan an undergraduate experience which includes courses to satisfy major and supporting area requirements, general education requirements, and the dental school admission requirements. The student's academic advisor will advise about the first two topics, while the Pre-dental Advisor will advise about dental school admission requirements.

Although specific admission requirements vary somewhat from dental school to dental school, the undergraduate courses which constitute the basic admission requirements and which prepare the student for the DAT are the following:

	Semester Credit Hours
ENGL 101 and 391—English Composition	3, 3
CHEM 103,113—General Chemistry I, II,	4, 4
CHEM 233, 243—Organic Chemistry I, II	4, 4
PHYS 121, 122 or PHYS 141, 142—Physics	4, 4
Biology, minimum*	8

*Although the minimum biology requirement is eight credits, the successful applicant will have more, including advanced training in biological sciences at the 300 to 400 level. BOTN 100, BIOL 101 and 124, and MICB 100 should not be taken to meet this requirement.

Three Year Arts-Dentistry Degree Program

Students whose performance during the first two years is exceptional may apply to the University of Maryland School of Dentistry at the beginning of their third year, for entry after three years of college work. By the end of the third year the student must have earned 90 academic credits, exclusive of physical education, the last 30 of which must have been earned at the University of Maryland at College Park. Within the 90 credits the student must have completed all the requirements listed below.

	Semester Credit Hours
General education requirements	30
Chemistry (inorganic and organic) CHEM 103, 113, 233, 243, or CHEM 105, 115, 235, 245	16
Biological Sciences	19-20

Pre-Law

1117 Hornbake Library and 3103 Turner Laboratory, 314-8418
Advisor: Michele Hotten, J.D.

Most law schools prefer applicants with a B.A. or B.S. degree; however, in some cases law schools will consider truely outstanding applicants with only three years of academic work. Most law schools do not prescribe specific courses which a student must present for admission, but do require that the student follow one of the standard programs offered by the undergraduate college. Many law schools require that the applicant take the Law School Admission Test (LSAT), preferably in July, October, or December of the academic year preceding entry into professional school.

Four-Year Program

No particular undergraduate major or special undergraduate courses are prerequisites for admission into law school. Students are encouraged to select a major in which they have a strong interest and expect to perform well. Course selections should be guided by the need to develop skill which are essential in preparing to perform well in law school, on the Law School Admissions Test (LSAT), and ultimately as a lawyer. These skill include imaginative and coherent thinking, critical reasoning, accurate and perceptive reading, and a strong command of the spoken and written language, including grammar. A broad liberal arts background, with evidence of high quality of work, will provide a strong foundation for law school.

Three-Year Program

Students with exceptional records may apply to the School of Law of the University of Maryland under the Arts-Law program. Upon recommendation by the Dean of the University of Maryland Law School and approval by College Park, students admitted to the program may be awarded a B.A. degree (Arts-Law) in August following the first year of law school or (after thirty credits of the law program). Minimum requirements for approval from College Park are completion of at least ninety credits (at least 30 from College Park) including the following: all university and general education requirements; at least 18 hours in one department with six hours at the 300-400 level.

For additional information, contact the Pre-law Advisor, 1117 Hornbake Library, (301) 314-8418.

Pre-Medical and Research Technology

Advisor: Stewart

College Park students may prepare themselves not only for entrance into the UMAB Medical and Research Technology Program, but also for entrance into clinical laboratory science programs at other colleges and universities. To do this efficiently, students should obtain program information when first entering college so that requirements can be taken in normal sequence. Information for the University of Maryland Program is available at the advising office, 3103 Turner Laboratory.

A Bachelor of Science degree in Medical and Research Technology is offered through the Medical and Research Technology Department of the University of Maryland Medical School, located in Baltimore (UMAB). Completion of a two-year pre-professional curriculum is required before admission to UMAB for the two professional years. Part-time study is possible.

Application and Admission

High school students who wish to enroll in this curriculum at College Park must meet this institution's admission requirements. While in high school students are encouraged to enroll in a college preparatory curriculum emphasizing biology, chemistry, and college preparatory mathematics.

Pre-Medical and Research Technology students should begin the application process for professional school in fall of the sophomore year. UMAB applications and instructions are available in the advising office. Enrollment as a pre-professional student does not guarantee admission to UMAB.

Pre-professional curriculum for UMCP students:

	Semester Credit Hours
CHEM 103, 113—Gen. Chem I, II	4, 4
CHEM 104 or CHEM 233 (organic chemistry)	4
BIOL 105—Prin. of Biology I	4
ZOOL 201 or 202, Anatomy and Physiology I or II	4
MICB 200—Gen. Microbiology	4
MATH 110, or 115	3
Statistics	3
ENGL 101—Intro. to Writing	3
Literature	3
SPCH 107 or SPCH 100 (speech)	3
Humanities (History, literature, philosophy, appreciation of Art, Music, Drama, Dance)	6
Behavioral and Social Sciences (Anthropology, Economics, Government & Politics, Geography, Psychology, Sociology)	9
Electives*	6
Total Semester Hours	60

*May not include health or physical education.

Further Information

At College Park, contact the Medical and Research Technology Advisor, University of Maryland, 3103 Turner Laboratory, College Park, MD 20742, (301) 405-2793. In Baltimore, contact the Medical and Research Technology Program, University of Maryland, Allied Health Professions Building, 100 S. Penn Street, Baltimore, Maryland 21201, (410) 706-7664.

Pre-Medicine

Advisor: Bradley

The pre-professional program for pre-medical students is a program of advising for students preparing to apply to medical school. The advice is based on requirements and recommendations of American medical schools and the requirements for a baccalaureate degree at College Park. The pre-medical advisor is prepared to assist students in setting career objectives, selecting undergraduate coursework to meet the admissions criteria of the professional schools, and in all phases of the application process itself.

The recommendations made during advising are meant to prepare the student to take the Medical College Admission Test (MCAT) in the spring of the junior year. Application to medical school is made during the summer-fall of the senior year. Medical admissions committees generally request or require an evaluation from the student's pre-medical advisor. It is important, therefore, for the student to contact the pre-medical advisor early in the academic career and to become familiar with the proper procedures necessary in the evaluation and application process.

For more information on the pre-medical advising program, contact the Pre-medical Advisor, 3103 Turner Laboratory, The University of Maryland, College Park, MD 20742, (301) 405-2793.

There are two ways to prepare for admission to medical school; a four-year program is preferable, but a three-year program is possible.

Four-Year Baccalaureate Program

Most pre-medical students at College Park complete a four-year undergraduate degree prior to entrance into medical school. Students are encouraged to pursue a diversified curriculum, balancing humanities courses with science and mathematics courses. No specific major is required, favored, or preferred by medical school admissions committees.

The four-year student will plan an undergraduate experience which includes courses to satisfy major and supporting area requirements, general education requirements, and the medical school admission requirements. The student's academic advisor will advise about the first two topics, while the pre-medical advisor will advise about medical school admission requirements.

Although specific admission requirements vary somewhat from medical school to medical school, the undergraduate courses which constitute the basic admission requirements and which prepare the student for the MCAT are the following:

	Semester Credit Hours
ENGL 101, 391—English Composition	3, 3
CHEM 103, 113—General Chemistry I, II	4, 4
CHEM 233, 243—Organic Chemistry I, II	4, 4
PHYS 121, 122, or PHYS 141, 142—Physics	4, 4
MATH 220, 221, or MATH 140, 141—Calculus	3, 3
or	4, 4
Biology, minimum**	8

*Although calculus is not an entrance requirement of many medical schools and is not included in the MCAT, one year of calculus is strongly recommended for the pre-professional student.

**Although the minimum biology requirement is eight credits, the successful applicant will have more, including advanced training in biological sciences at the 300-400 level. BOTN 100, BIOL 101 and 124, and MICB 100 should not be taken to meet this requirement.

Three-Year Arts-Medicine Degree Program

Students whose performance during the first two years is exceptional may apply to the University of Maryland School of Medicine at the beginning of their third year, for entry after three years of college work. By the end of the third year the student must have earned 90 academic credits, exclusive of physical education, the last 30 of which must have been earned at the University of Maryland College Park. Within the 90 credits the student must have completed all the requirements listed below.

	Semester Credit Hours
General education requirements	30
Chemistry (inorganic and organic)	16
CHEM 103, 113, 233, 243 or CHEM 105, 115, 235, 245	
Biological Sciences	19-20
ZOOL 210—Animal Diversity	
ZOOL 211—Cell Biology and Physiology	
MICB 200—General Microbiology	
Either ZOOL 213 or MICB 380	
One of the following:	
ZOOL 411—Cell Biology	
ZOOL 422—Vertebrate Physiology	
ZOOL 430—Vertebrate Embryology	
ZOOL 495—Mammalian Histology	
MICB 360—Medical Virology	
MICB 440—Pathogenic Microbiology	
MICB 450—Immunology	
Mathematics	6-8
MATH 220, 221 or MATH 140, 141	
Physics 121, 122, or 141, 142	8
Additional upper-level courses from any one of the following combinations:	7-10
1. Zoology: seven hours on the 300-400 level, including one laboratory course	
2. Microbiology: seven hours on the 300-400 level, including one laboratory course	
3. CHEM 321: Quantitative Analysis, plus any three-credit course at the 300-400 level in the physical or biological sciences which is approved by the Pre-medical Advisor.	
4. BCHM 461, 462, 463, and 464	
5. Nine hours on the 300-400 level in any one department of the College of Arts and Humanities or the College of Behavioral and Social Sciences.	
Electives as needed to total at least ninety credits	0-4
Total	90-92

Incoming freshmen interested in this three-year program are strongly urged to consult the Pre-medical Advisor before registration for the first semester at College Park.

Students accepted in the combined arts-medicine program may receive the B.S. degree (Arts-Medicine) after satisfactory completion of the first year at the University of Maryland Medical School upon recommendation by the dean of the School of Medicine and approval by College Park, the degree to be awarded in August following the first year of medical school. The courses of the first year of medical school constitute the major; the College Park courses listed above constitute the supporting area.

Participation in the three-year program in no way guarantees admission to the University of Maryland School of Medicine. Three-year students compete with the four-year students for admission.

Pre-Nursing

Advisor: Stewart

College Park students may prepare themselves not only for entrance into the University of Maryland nursing program, but also for entrance into nursing programs at other colleges and universities. To do this efficiently, students should obtain program information when first entering college so that requirements can be taken in normal sequence. Information for the University of Maryland School of Nursing is available at the advising office, room 3103, Turner Laboratory.

The School of Nursing, located in Baltimore (UMAB), offers a four-year program leading to the Bachelor of Science degree in nursing. Completion of a two-year pre-professional curriculum is required before admission to UMAB for the two professional years. An optional 1-credit internship is offered.

Application and Admission

High school students who wish to enroll in the pre-nursing curriculum at College Park must meet admission requirements of that institution. While in high school, students should enroll in a college preparatory curriculum including biology, chemistry, and at least three units of college preparatory mathematics.

Pre-nursing students should begin the application process for professional school in fall of the sophomore year. UMAB applications and instructions are available in the advising office. Enrollment as a pre-nursing student does not guarantee admission to the nursing program at UMAB.

Pre-professional curriculum for UMCP students:

	Semester Credit Hours
CHEM 103, 104—General Chemistry I, Fundamentals of Organic and Biochemistry	4, 4
ENGL 101—Introduction to Writing	3
ENGL 291 or ENGL 391 —Intermediate Writing or Advanced Composition	3, 3
BIOL 105	4
MATH 110—Elementary Mathematical Models (or higher)	3
Humanities* (literature, history, philosophy, math, fine arts, language, speech)	9
PSYC 100—Introduction to Psychology	3
SOCY 100—Introduction to Sociology or 105 Introduction to Contemporary Social Problems	3
EDHD 320—Human Development Through The Lifespan	3
Other social sciences (sociology, psychology, anthropology, government and politics, economics, geography)	3
ZOOL 201, 202—Human Anatomy & Physiology I,II	4, 4
MICB 200—General Microbiology	4
NUTR 200—Nutrition for Health Services	3
Elective	2-3
	59-60

*Must include at least one course which is not mathematics or English.

Further Information

At College Park contact the Nursing Advisor, 3103 Turner Laboratory, College Park, MD 20742, (301) 405-2793. In Baltimore contact the Director for Admissions, The University of Maryland, School of Nursing, 655 W. Lombard Street, Baltimore, Maryland 21201, (410) 706-6282. "RN to BSN" advisor: UMBC, 5401 Wilkens Ave., Catonsville, MD 21228 (410) 455-3450.

Pre-Optometry

Advisor: Bradley

Requirements for admission to schools and colleges of optometry vary somewhat, and the pre-optometry student should consult the catalogs of the optometry schools and colleges for specific admission requirements. A minimum of two years of pre-optometry studies is required for admission to all accredited schools, and about half of the schools require a minimum of three years. At present, more than two-thirds of successful applicants hold a bachelor's or higher degree. Students who contemplate admission to optometry schools may major in any program that the University offers,

but would be well-advised to write to the optometry schools of their choice for specific course requirements for admission. In general, pre-optometry students should follow a four-year baccalaureate program which includes the following:

	Semester Credit Hours
Biology and Microbiology and Physiology	4-12
Inorganic Chemistry	8
Organic Chemistry	4-8
Physics	8
Math through differential calculus	6
English	6
Psychology	3-6
Statistics	3
Social Sciences	6

For additional information on pre-optometry studies, contact the Pre-medical Advisor, 3103 Turner Laboratory, The University of Maryland, College Park, MD 20742, (301) 405-2793.

Pre-Osteopathic Medicine

Advisor: Bradley

The pre-professional requirements for osteopathic medical school are essentially identical to those for allopathic medical school, and the student is referred to the pre-medicine discussion above.

For additional information on pre-osteopathy studies, contact the Pre-medical Advisor, 3103 Turner Laboratory, The University of Maryland, College Park, MD 20742, (301) 405-2793.

Pre-Pharmacy

Advisor: Stewart

College Park students may prepare themselves not only for entrance into the UMAB School of Pharmacy, but also for entrance into pharmacy programs at other colleges and universities. To do this efficiently, students should obtain program information when first entering college so that requirements can be taken in normal sequence. Information for the University of Maryland School of Pharmacy is available at the Health Professions Advising Office, 3103 Turner Laboratory. Also at this location students may read about other schools of pharmacy.

The School of Pharmacy, located in Baltimore (UMAB), is consolidating its two professional programs into a single, six-year, entry-level Doctor of Pharmacy (Pharm.D.) program, effective with the junior class entering in Fall 1993. The professional phase will be four years in length and will offer different paths of concentration, including community practice and clinical pharmacy/pharmacotherapy. Completion of a two-year pre-professional curriculum is required before admission to the School of Pharmacy.

Application and Admission

Applicants for pre-pharmacy at College Park must meet all admission requirements of that institution. While in high school students are encouraged to enroll in a college preparatory curriculum emphasizing biology, chemistry, and college preparatory mathematics.

Pre-pharmacy students should begin the application process for professional school in fall of the sophomore year. UMAB applications and instructions are available in the advising office. Applications for other programs must be obtained individually from the respective colleges.

Enrollment as a pre-pharmacy student does not guarantee admission to the School of Pharmacy at the University of Maryland at Baltimore (UMAB). Students who are uncertain about their chances of admission to professional school are encouraged to consult the advisor.

Pre-professional curriculum for UMCP students:

	Semester Credit Hours
CHEM 103, 113—General Chemistry I, II	4, 4
CHEM 233, 243—Organic Chemistry I, II	4, 4
MATH 220—Elementary Calculus I	3
BIOL 105—Principles of Biology I	4
PHYS 121, 122—Fundamentals of Physics I, II	4, 4
ENGL 101—Introduction to Writing	3
Other English	3
Humanities (English, Journalism, Fine Arts, Classics, Modern Language, Philosophy, or Speech)	6
Social science (Anthropology, Economics, Geography, History, Government and Politics, Psychology, or Sociology)	6
Additional humanities or social sciences	6
Electives	5-6
	60-61

Further Information

At College Park contact the Pharmacy Advisor, University of Maryland, 3103 Turner Laboratory, College Park, MD 20742, (301) 405-2793. In Baltimore, contact Admissions Committee Chairman, University of Maryland School of Pharmacy, 20 North Pine Street, Baltimore, Maryland 21201, (410) 706-7650.

Pre-Physical Therapy

Advisor: Stewart

College Park students may prepare themselves not only for entrance into University of Maryland physical therapy programs but also for entrance into physical therapy programs at other colleges and universities. To do this efficiently, students should obtain program information when first entering college so that requirements can be taken in normal sequence. Information for the University of Maryland programs is available at the Health Professions Advising Office, 3103 Turner Laboratory. Information about other schools is also available.

The University of Maryland offers two entry-level masters (MPT) programs in physical therapy, each six years in length. One is offered at the Baltimore City Campus (UMAB) and the other at the Eastern Shore Campus (UMES) in Princess Anne. Completion of a three-year pre-professional curriculum is required before admission to the three-year professional phase of either program. The first professional year starts in summer at UMAB and in fall at UMES.

Application and Admission

Applicants for the pre-physical therapy program at College Park must meet all of that institution's admission requirements. While in high school students should pursue a college preparatory program. Subjects specifically recommended are biology, chemistry, physics, and at least three units of college preparatory mathematics.

Pre-physical therapy students should begin the application process for professional school about eight months prior to the expected date of enrollment in professional school. UMAB or UMES applications and instructions are available in the advising office. Applications for other programs must be obtained individually from the respective colleges.

Enrollment as a pre-physical therapy student does not guarantee admission to the physical therapy programs at either UMAB or UMES. In view of the heavy competition for admission, all applicants are encouraged to apply to several programs. This entails investigating schools in other states and other geographic regions.

Preprofessional curriculum for UMCP students applying to UMAB.

	Semester Hours
CHEM 103, 104*: General Chemistry I, Fundamentals of Organic & Biochemistry	4, 4
PHYS 121, 122: Fundamentals of Physics I & II	4, 4
BIOL 105: Principles of Biology	4
Biological science elective	4
ZOOL 211: Cell Biology and Physiology	4
MATH 220: Elementary Calculus I	3
Statistics (see advisor)	6
CMSC 103: Introduction to Computing	3
PSYC 100: Introduction to Psychology	3
Personality or development psychology	3
EDHD 320: Human Growth & Devel. through Life Span	3
ENGL 101: Introduction to Writing	3
ENGL 291 or 391: Intermediate or Advanced writing	3
General Education (See Advisor)	21
Electives	14
TOTAL	90

Preprofessional curriculum for UMCP students applying to UMES:

	Semester Hours
CHEM 103, 104*: General Chemistry I, Fundamentals of Organic & Biochemistry	4, 4
PHYS 121, 122: Fundamentals of Physics I,II	4
BIOL 105: Principles of Biology	4
ZOOL 201, 202: Human Anatomy & Physiology I, II	4, 4
ZOOL 211:Cell Biology and Physiology	4
MATH 115: Precalculus	3

Statistics	3
PSYC 100: Introduction to Psychology	3
Additional Psychology (abnormal or child)	3
ENGL 101: Introduction to Writing	3
English (including at least one additional writing course)	6
SPCH 107 OR SPCH 100: Technical Speech Communication OR Basic Principles of Speech Communication	3
Arts & Humanities (Literature, Foreign Language, Philosophy, or Fine Arts [non-studio])	6
Health Education	2
Physical Activities	2
Electives	24
TOTAL	90

*CHEM 113 may be substituted for CHEM 104.

Further Information

At College Park contact the Physical Therapy Advisor, 3103 Turner Laboratory, College Park, MD 20742, (301) 405-2793. At UMES, contact Dr. Raymond Blakely, Department of Physical Therapy, UMES, Princess Anne, MD 21853, (410) 651-6301. In Baltimore contact the Department of Physical Therapy, 100 S. Penn Street, Baltimore, MD 21201, (410) 706-7720.

Pre-Podiatric Medicine

Advisor: Bradley

The pre-professional requirements for podiatric medical school areessentially identical to those for allopathic medical school, and the student is referred to the pre-medicine discussion above.

For additional information on pre-podiatry studies, contact the Pre-medical Advisor, The University of Maryland, 3103 Turner Laboratory, College Park, MD 20742, (301) 405-2793.

Pre-Veterinary Medicine

Advisors: Hohenhaus, Ingling, Stephenson

UMCP students interested in veterinary medicine are eligible for a special degree program offered through the College of Agriculture. Through this program (see programs in the College of Agriculture), students may earn a combined Bachelor of Sciences degree in Agriculture and Veterinary Medicine.

Students within any major may also prepare for admission to veterinary school by completing required courses. Students should consult catalogs from the veterinary schools in which they are interested. Minimum requirements for most programs include the following:

UMCP CORE Requirements
BIOL 105, 106, 222
CHEM 103, 113, 233, 243
Biochemistry; MICB 200
PHYS 121 (or 141), 122 (or 142)
MATH 220 (or 140) and 3 credits of other mathematics

Students should seek pre-veterinary advising through the Director of Resident Instruction, 1203 Gudelsky Veterinary Center, University of Maryland, College Park, MD 20742, (301) 935-6083.

CERTIFICATE PROGRAMS

Afro-American Studies Certificate

College of Behavioral and Social Sciences
2169 LeFrak, 405-1158

The Afro-American Studies Certificate program offers the opportunity to gain a concentration in an interdisciplinary package of courses on the black experience. Courses include such disciplines as Anthropology, Art, Literature, History, Public Policy, and Sociology.

Undergraduates in good standing may apply for the program by contacting Charlotte Gills of the Afro-American Studies Program in 2169 LeFrak Hall. Students pursuing the certificate must meet the University's general education (CORE) and department requirements.

See the complete description in the alphabetical list of programs.

East Asian Studies Certificate

College of Arts and Humanities
2101B Francis Scott Key Hall, 405-4309

The Undergraduate Certificate in East Asian Studies is a twenty-four-credit course of instruction designed to provide specialized knowledge of the cultures, histories, and contemporary concerns of the peoples of China, Japan, and Korea. It will complement and enrich a student's major. The curriculum focuses on language instruction, civilization courses, and electives in several departments and programs of the university. It is designed specifically for students who wish to expand their knowledge of East Asia and demonstrate to prospective employers, the public, and graduate and professional schools a special competence and set of skills in East Asian affairs.

Upon satisfactory completion of the courses, with a grade of C or better in each course, and recommendation by the chairperson of the Committee on East Asian Studies, a certificate will be awarded. A notation of the award of the certificate will be included on the student's transcript. The student must have a baccalaureate degree awarded previous to or simultaneously with an award of the certificate.

Certificate Requirements

Core Courses: The student is required to take:
1. HIST 284—East Asian Civilization I
2. HIST 285—East Asian Civilization II
3. Six semester hours of introduction to one of the following East Asian languages (Chinese, Japanese, or Korean):
   CHIN 101—Elementary Chinese I
   JAPN 101—Elementary Japanese I
   FOLA 109—Elementary Korean II AND
   FOLA 118K—Intermediate Korean I

Students with language competence equivalent to these language courses are exempted from the language requirement; such students are required to complete an additional six hours of electives in East Asian courses to fulfill the twenty-four-credit requirement for the certificate.

Electives: Students must complete at least twelve hours of electives selected from four regular formally approved courses on East Asia in at least two of the following categories: (1) art history, (2) geography, (3) government and politics, (4) history, (5) language, linguistics, and literature, (6) music, (7) sociology, and (8) urban studies. Nine of the twelve hours of electives must be upper division (300-400 level) courses. A maximum of three credit hours of special topics courses on East Asian will be allowed with the approval of the student's certificate adviser. No more than nine credits from any one department may be applied toward the certificate. No more than nine credits applied to the student's major may also apply to the certificate. In addition, no more than nine credits of the courses applied toward the certificate may be transferred from other institutions. Students are asked to work with their advisor in ensuring that the electives maintain an intercollegiate and interdisciplinary focus (at least three disciplines are recommended).

Interested students should contact Dr. Marlene Mayo, Department of History, Francis Scott Key Hall, (301) 405-4309.

Women's Studies Certificate

College of Arts and Humanities
1115 Mill Building, 405-6878

The Women's Studies Certificate Program consists of an integrated, interdisciplinary curriculum on women which is designed to supplement a student's major. Any student in good standing may enroll in the certificate program by declaring her/his intention to the Women's Studies undergraduate advisor. For additional information, contact the Women's Studies Office, 405-7710. See the alphabetical list of programs, above, for curriculum details.

CHAPTER 8

APPROVED COURSES

The following list includes undergraduate courses that have been approved as of February 1, 1993. Courses added after that date do not appear in this list. Courses eliminated after that date may still appear. Not every course is offered regularly. Students should consult the Schedule of Classes to ascertain which courses are actually offered during a given semester.

COURSE NUMBERING SYSTEM

Number	Eligibility
000-099	Non-credit course.
100-199	Primarily freshman course.
200-299	Primarily sophomore course.
300-399	Junior, senior course not acceptable for credit toward graduate degrees.
386-387	Campus-wide internship courses; refer to information describing the Office Experiential Learning in Part 1.
400-499	Junior, senior course acceptable for credit toward some graduate degrees.
500-599	Professional School course (Dentistry, Architecture, Law, Medicine) or post-baccalaureate course.
600-899	Course restricted to graduate students.
799	Master Thesis credit.
899	Doctoral Dissertation credit.

AASP — Afro-American Studies

AASP 100 Introduction to Afro-American Studies (3) Significant aspects of the history of Afro-Americans with particular emphasis on the evolution and development of black communities from slavery to the present. Interdisciplinary introduction to social, political, legal and economic roots of contemporary problems faced by blacks in the United States with applications to the lives of other racial and ethnic minorities in the Americas and in other societies.

AASP 101 Public Policy and the Black Community (3) Formerly AASP 300. The impact of public policies on the black community and the role of the policy process in affecting the social, economic and political well-being of minorities. Particular attention given to the post-1960 to present era.

AASP 200 African Civilization (3) A survey of African civilizations from 4500 B.C. to present. Analysis of traditional social systems. Discussion of the impact of European colonization on these civilizations. Analysis of the influence of traditional African social systems on modern African institutions as well as discussion of contemporary processes of Africanization.

AASP 202 Black Culture in the United States (3) The course examines important aspects of American Negro life and thought which are reflected in Afro-American literature, drama, music and art. Beginning with the cultural heritage of slavery, the course surveys the changing modes of black creative expression from the nineteenth-century to the present.

AASP 298 Special Topics in Afro-American Studies (3) Repeatable to 6 credits if content differs. An introductory multi-disciplinary and inter-disciplinary educational experience to explore issues relevant to black life, cultural experiences, and political, economic and artistic development.

AASP 301 Applied Policy Analysis and the Black Community (3) Prerequisite: AASP 101. Recommended, one semester of statistics. Development and application of the tools needed for examining the effectiveness of alternative policy options confronting minority communities. Review policy research methods used in forming and evaluating policies. Examination of the policy process.

AASP 303 Computer Applications in Afro-American Studies (3) Prerequisite: STAT 100 or SOCY 201 or MATH 111 or equivalent. Introduction to statistics and database processing software used in model estimation and simulation in policy analysis. Special emphasis on applications for applied research on policy problems confronting minority communities.

AASP 305 Theoretical, Methodological and Policy Research Issues in Afro-American Studies (3) Prerequisite: AASP 101 or permission of department. Formerly AASP 401. Theories and concepts in the social and behavioral sciences relating to problems in minority communities. Issues include validity and soundness of theoretical arguments, epistemological questions of various methodologies and the relationship between policy making and policy research.

AASP 310 African Slave Trade (3) Formerly AASP 311. The relationship of the slave trade of Africans to the development of British capitalism and its industrial revolution; and to the economic and social development of the Americas.

AASP 312 Social and Cultural Effects of Colonization and Racism (3) A comparative approach to the study of the social and cultural effects of colonization and racism on black people in Africa, Latin America and in the United States--community and family life, religion, economic institutions, education and artistic expression.

AASP 397 Senior Thesis (3) Prerequisites: AASP 305; and permission of department. Directed research in Afro-American Studies resulting in the completion and defense of a senior thesis.

AASP 398 Selected Topics in the African Diaspora (3) Repeatable to 6 credits if content differs. Analysis of the historical experiences and cultures of Africans in the diaspora.

AASP 400 Directed Readings in Afro-American Studies (3) The readings will be directed by the faculty of Afro-American Studies. Topics to be covered will be chosen to meet the needs and interests of individual students.

AASP 402 Classic Readings in Afro-American Studies (3) Classic readings of the social, economic and political status of blacks and other minorities in the United States and the Americas.

AASP 410 Contemporary African Ideologies (3) Analysis of contemporary African ideologies. Emphasis on philosophies of Nyerere, Nkrumah, Senghor, Sekou Toure, Kaunda, Cabral, et al. Discussion of the role of African ideologies on modernization and social change.

AASP 411 Black Resistance Movements (3) A comparative study of the black resistance movements in Africa and America; analysis of their interrelationships as well as their impact on contemporary pan-Africanism.

AASP 441 Science, Technology, and the Black Community (3) Prerequisite: AASP 100 or AASP 202 or HIST 255 or permission of department. Scientific knowledge and skills in solving technological and social problems, particularly those faced by the black community. Examines the evolution and development of African and Afro-American contributions to science. Surveys the impact of technological changes on minority communities.

AASP 443 Blacks and the Law (3) Prerequisite: AASP 100 or AASP 202 or HIST 255 or permission of department. The relationship between black Americans and the law, particularly criminal law, criminal institutions and the criminal justice system. Examines historical changes in the legal status of blacks and changes in the causes of racial disparities in criminal involvement and punishments.

AASP 468 Special Topics in Africa and the Americas (3) Repeatable to 6 credits if content differs. Cultural, historical and artistic dimensions of the African experience in Africa and the Americas.

AASP 478 Humanities Topics in Afro-American Studies (3) Repeatable to 6 credits if content differs. Advanced studies in the humanities, often requiring prerequisites, focusing on the literary, artistic and philosophical contributions of Africans and African-Americans.

AASP 497 Policy Seminar in Afro-American Studies (3) Prerequisite: AASP 301 or permission of department. Application of public policy analysis to important social problems and policy issues affecting black Americans. Policy research and analysis procedures through an in-depth study of a critical, national black policy issue.

AASP 498 Special Topics in Black Culture (3) Prerequisite: AASP 100 or AASP 202. Repeatable to 6 credits if content differs. Advanced study of the cultural and historical antecedents of contemporary African and Afro-American society. Emphasis on the social, political, economic and behavioral factors affecting blacks and their communities. Topics vary.

AASP 499 Advanced Topics in Public Policy and the Black Community (3) Prerequisite: AASP 301 or permission of department. Repeatable to 6 credits if content differs. Examination of specific areas of policy development and evaluation in black and other communities. Application of advanced tools of policy analysis, especially quantitative, statistical and micro-economic analysis.

AGRI — Agriculture

AGRI 105 Risk and Responsibility - An Introduction to Agriculture (3) Formerly AGRI 101. Technical and human components of agriculture in a cross-disciplinary context. Agricultural origins, crop and animal domestication, agricultural geography, food and nutrition, the natural resource base and environmental concerns, agricultural policy formation, agricultural marketing and trade, sustainable agriculture, international agriculture, and the future of farming.

AGRI 302 Introduction to Agricultural Education (2) Formerly AEED 302. An overview of the job of the teacher of agriculture; examination of agricultural education programs for youth and adults.

AGRI 305 Teaching Young and Adult Farmer Groups (1) Formerly AEED 305. Characteristics of young and adult farmer instruction in agriculture. Determining needs for and organizing a course; selecting materials for instruction; and class management. Emphasis is on the conference method of teaching.

AGRI 311 Teaching Secondary Vocational Agriculture (3) A comprehensive course in the work of high school departments of vocational agriculture. It emphasizes particularly placement, supervised farming programs, the organization and administration of future farmer activities, and objectives and methods in all-day instruction.

AGRI 313 Student Teaching (5) Prerequisite: satisfactory academic average and permission of department. Formerly AEED 313. Full-time student teaching in an off-campus student teaching center under an approved supervising teacher of agriculture, participating experience in all aspects of the work of a teacher of agriculture.

AGRI 315 Student Teaching (1-4) Prerequisite: satisfactory academic average and permission of department. Formerly AEED 315. Full-time observation and participation in work of teacher of agriculture in off-campus student teaching center. Provides students opportunity to gain experience in the summer program of work, to

participate in opening of school activities, and to gain other experience needed by teachers.

AGRI 322 An Introduction to Adult and Continuing Education (3) Formerly AEED 322. This course introduces students to the field of nonformal adult and continuing education. It examines the social functions, studies the critical issues, explores career opportunities and surveys some of the nonformal adult education delivery systems.

AGRI 323 Developing Youth Programs (3) Formerly AEED 323. Concepts involved in planning and executing nonformal educational programs developed to meet the needs of youth. Emphasize the identification of opportunities; needs, and problems of youth in all socio-economic levels; analysis of methods of working with youth groups and developing volunteer staff.

AGRI 325 Directed Experience in Extension Education (1-5) Prerequisite: satisfactory academic average and permission of department. Formerly AEED 325. Full-time observation and participation in selected aspects of extension education in an approved training county.

AGRI 389 Selected Topics (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Students are placed in work experiences related to their stated career goals for a minimum of eight hours a week for a semester. Each student must do an in-depth study in some portion of the work experience and produce a special project and report related to this study. A student work log is also required. An evaluation from the external supervisor of the project will be required.

AGRI 400 International Agricultural Extension and Development (3) Formerly AEED 400. Examination of the social and ethical issues that shape extension's role in the agriculture sector of countries worldwide and that determine its contribution to international development. Review of a wide range of literature from scholars, governments, and international organizations.

AGRI 450 Human Resources Development in Agriculture (3) Three hours of lecture and one hour of discussion/recitation per week. Junior standing. Human resources development in the agriculture sector highlights policy, institutional, and programmatic determinations to advance work force capability in countries worldwide. Focus on developing countries, their problems, needs, and the challenge ahead.

AGRI 464 Rural Life in Modern Society (3) Formerly AEED 464. The historical and current nature of rural and agricultural areas and communities in the complex structure and culture of U.S. society. Basic structural, cultural, and functional concepts for analyses and contrasts of societies and the organizations and social systems within them.

AGRI 466 Rural Poverty in an Affluent Society (3) Formerly AEED 466. Factors giving rise to conditions of rural poverty. Problems faced by the rural poor. Programs designed to alleviate rural poverty.

AGRI 488 Critique in Rural Education (1) Formerly AEED 488. Current problems and trends in rural education.

AGRI 489 Field Experience (1-4) Prerequisite: permission of department. Repeatable to 4 credits. Formerly AEED 489. Credit according to time scheduled and organization of the course. A lecture series organized to study in depth a selected phase of agriculture not normally associated with one of the existing programs.

AGRI 499 Special Problems (1-3)

AGRO—Agronomy

AGRO 101 Introductory Crop Science (4) Credit will be granted for only one of the following: AGRO 101 or AGRO 100 and AGRO 102. Major crop plants including: anatomy, physiology, morphology, history, use, adaptation, culture, improvement and economic importance.

AGRO 105 Soil and Environmental Quality (3) Soils as an irreplaceable natural resource, the importance of soils in the ecosystem, soils as sources of pollution, and soils as a medium of the storage, assimilation or inactivation of pollutants. Acid rain, indoor radon, soil erosion and sedimentation, nutrient pollution of waters, homeowners problems with soils, and the effect of soils on the food chain.

AGRO 302 Fundamentals of Soil Science (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: one semester of chemistry, or permission of department. Study and management of soils as natural bodies, media for plant growth, and ecosystem components. Morphology, composition, formation, and conservation of soils. Chemical, biological, and physical properties of soils are discussed in relation to the production of plants, the functioning of hydrologic and nutrient cycles, the protection of environmental quality, and engineering uses of soils.

AGRO 303 International Crop Production (3) Prerequisite: BIOL 105 or equivalent. An introduction to the biological dimension of world hunger. The problems and potentials for increasing world food supply based on current agronomic knowledge. Emphasis on international aspects of food crop production and the interrelationships between agriculture and human populations in the developing world.

AGRO 305 Introduction to Turf Management (3) Formerly AGRO 405. Principles of turf culture. Identification and uses of turfgrass species; turfgrass fertilization, cultivation, mowing and establishment; and identification of turf pests.

AGRO 308 Field Soil Morphology (1-2) One hour of lecture and two hours of laboratory per week. Prerequisite: permission of department. Repeatable to 4 credits. Intensive field study of soils with particular emphasis on soil morphology, soil classification, and agricultural and urban soil interpretations. Focus in fall semesters is on soils of the Northeast U.S.; focus in spring semesters is on soils outside the Northeast region. The lab period is devoted to fields trips and student efforts culminate in a mandatory extended field trip.

AGRO 398 Senior Seminar (1) Reports by seniors on current scientific and practical publications pertaining to agronomy.

AGRO 401 Pest Management Strategies for Turfgrass (3) Prerequisite: AGRO 305. Interdisciplinary view of weed, disease, and insect management from an agronomy perspective. Plant responses to pest invasion, diagnosis of pest-related disorders, and principles of weed, disease and insect suppression through cultural, biological and chemical means are discussed.

AGRO 402 Sports Turf Management (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: AGRO 305 and AGRO 401. Sports turf management, including design, construction, soil modification, soil cultural techniques, pesticide use, fertilization, and specialized equipment.

AGRO 403 Crop Breeding (3) Prerequisite: BOTN 414 or ZOOL 213. Principles and methods of breeding annual self and cross-pollinated plant and perennial forage species.

AGRO 406 Forage Crops (3) Prerequisite: BIOL 105. Recommended: BIOL 106. World grasslands and their influence on early civilizations; current impact on human food supply; role of forages in soil conservation and a sustainable agriculture. Production and management requirements of major grass and legume species for silage and pasture for livestock feed. Cultivar development; certified seed production and distribution.

AGRO 407 Cereal and Oil Crops (3) Pre- or corequisites: BIOL 105 and AGRO 101. A study of principles of production for corn, small grains, rice, millets, sorghums, and soybeans and other oil seed crops. A study of seed production, processing, distribution and federal and state seed control programs of corn, small grains and soybeans.

AGRO 410 Commercial Turf Maintenance and Production (3) Prerequisite: AGRO 305 and AGRO 401. Commercial lawn care industry, sod production and turfgrass seed production. Fertilizer, renovation programs, and weed and insect control programs used in professional lawn care. Environmental effects of lawn care programs.

AGRO 411 Principles of Soil Fertility (3) Soil factors affecting plant growth and quality with emphasis on the bio-availability of mineral nutrients. The management of soil systems to enhance plant growth by means of crop rotations, microbial activities, and use of organic and inorganic amendments

AGRO 413 Soil and Water Conservation and Management (3) Prerequisite: AGRO 302. Importance and causes of soil erosion, methods of soil erosion control. Effects of conservation practices on soil physical properties and the plant root environment. Irrigation and drainage as related to water use and conservation.

AGRO 414 Soil Morphology, Genesis and Classification (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: AGRO 302. Processes and factors of soil genesis. Taxonomy of soils of the world by U.S. System. Soil morphological characteristics, composition, classification, survey and field trips to examine and describe soils.

AGRO 415 Soil Survey and Land Use (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: AGRO 302. Evaluation of soils in the uses of land and the environmental implications of soil utilization. Interpretation of soil information and soil surveys as applied to both agricultural and non-agricultural problems. Incorporation of soil data into legislation, environmental standards and land use plans.

AGRO 417 Soil Physics (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: AGRO 302 and a course in physics; or permission of department. A study of physical properties of soils with special emphasis on relationship to soil productivity.

AGRO 421 Soil Chemistry (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: AGRO 302. The chemistry and composition of mineral and organic colloids in soils, including ion exchange, oxidation-reduction, acidity, surface charge, and solution chemistry. Lectures and readings pertain to plant nutrition, waste disposal, and groundwater quality.

AGRO 422 Soil Microbiology (3) Prerequisite: AGRO 302, CHEM 104 or permission of department. Relationship of soil microorganisms to the soils' physical and chemical properties. Nitrogen fixation, mycorrhizae-plant interactions and microbially mediated cycling.

AGRO 423 Soil-Water Pollution (3) Prerequisites: AGRO 302 and CHEM 104 or permission of department. Reaction and fate of pesticides, agricultural fertilizers, industrial and animal wastes in soil and water with emphasis on their relation to the environment.

AGRO 440 Crop, Soils, and Civilization (3) Role and importance of crop and soil resources in the development of human civilization. History of crop and soil use and management as they relate to the persistence of ancient and modern cultures.

AGRO 441 Sustainable Agriculture (3) Environmental, social and economic needs for alternatives to the conventional, high-input farming systems which currently predominate in industrial countries. Strategies and practices that minimize the use of non-renewable resources.

AGRO 444 Remote Sensing of Agriculture and Natural Resources (3) Interaction of electromagnetic radiation. Remote sensing technology to agriculture and natural resource inventory, monitoring and management and related environmental concerns.

AGRO 451 Crop Culture and Development (3) Pre- or corequisite: BOTN 441. Application of basic plant physiology to crop production. Photosynthesis, respiration, mineral nutrition, water and temperature stress, and post-harvest physiology.

AGRO 453 Weed Science (3) Two hours of lecture and three hours of laboratory per week. Weed identification, ecology, and control (cultural, mechanical, biological, and chemical methods).

AGRO 454 Air and Soil Pollution Effects on Crops (3) Effects of air pollutants such as ozone, sulfur dioxide, acid rain, etc., and soil pollutants such as toxic metals, pesticides, on the growth, productivity and quality of crops.

AGRO 483 Plant Breeding Laboratory (2) Prerequisites: AGRO 403 and permission of department. Current plant breeding research being conducted at The University of Maryland and USDA at Beltsville. Discussion with plant breeders about pollination techniques, breeding methods, and program achievements and goals. Field trips to selected USDA laboratories.

AGRO 499 Special Problems in Agronomy (1-3) Prerequisites: AGRO 302, AGRO 406, AGRO 407 or permission of department. A detailed study, including a written report of an important problem in agronomy.

AMST —American Studies

AMST 201 Introduction to American Studies (3) Introduction to American cultural studies—past and present—by examining the concept of "self" in American autobiographical writing and the concept of "society" in accounts of various communities.

AMST 203 Popular Culture in America (3) An introduction to American popular culture, its historical development, and its role as a reflection of and influence on our culture and society.

AMST 204 Film and American Culture Studies (3) Exploration of the American film from an historical perspective, illustrating the motion picture's role as an institutional phenomenon, as a form of communication, and as a source of cross-cultural study.

AMST 205 Material Aspects of American Life (3) Historical survey of American material culture. Ways of describing and interpreting accumulated material evidence, e.g. buildings, town plans, introduced by stressing relationship between artifact and culture.

AMST 206 Business and American Culture Studies (3) Investigates the traditional definitions of personal success, the process of corporate rituals and the role of innovation in American business since 1945. Contemporary business discussed within the context of national and global sociocultural changes applying organizational theory, historical studies and anthropological field work to an analysis of audiotapes, videotapes, films and popular literature.

AMST 207 Contemporary American Cultures (3) World views, values, and social systems of contemporary American cultures explored through readings on selected groups such as middle-class suburbanites, old order Amish, and urban tramps.

AMST 211 Technology and American Culture (3) Historical and contemporary technological innovations in American society, with special emphasis on the humanities. Varied social and cultural responses to one contemporary technological issue, e.g. environmental pollution, genetic engineering, communications technology, and psychopharmacology.

AMST 298 Selected Topics in American Studies (3) Repeatable to 6 credits if content differs. Cultural study of a specific theme or issue involving artifacts and documents from both past and contemporary American experience.

AMST 330 Critics of American Culture (3) Prerequisite: prior course in AMST, HIST, or SOCY. Philosophies of American social purpose and promise. Readings from "classical" American thinkers, contemporary social commentators, and American studies scholars.

AMST 398 Independent Studies (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Provides the student with the opportunity to pursue independent, interdisciplinary research and reading in specific areas of American culture studies.

AMST 418 Cultural Themes in America (3) Repeatable to 6 credits if content differs. Examination of structure and development of American culture through themes such as "growing up American", "culture and mental disorders", "race", "ethnicity", "regionalism", "landscape", "humor".

AMST 428 American Cultural Eras (3) Repeatable to 6 credits if content differs. Investigation of a decade, period, or generation as a case study in significant social change within an American context. Case studies include "Antebellum America, 1840-1860", "American culture in the Great Depression".

AMST 429 Perspectives on Popular Culture (3) Repeatable to 6 credits if content differs. Topics in popular culture studies, including the examination of particular genres, themes, and issues.

AMST 432 Literature and American Society (3) Prerequisite: prior course in AMST, SOCY, American literature, or American history. Examination of the relationship between literature and society, including literature as cultural communication and the institutional framework governing its production, distribution, conservation and evaluation.

AMST 450 Seminar in American Studies (3) Prerequisite: nine hours prior coursework in American Studies, including AMST 201. Senior standing. For AMST majors only. Developments in theories and methods of American Studies scholarship, with emphasis upon interaction between the humanities and the social sciences in the process of cultural analysis and evaluation.

ANSC — Animal Science

The following courses may involve the use of animals. Students who are concerned about the use of animals in teaching have the responsibility to contact the instructor, prior to course enrollment, to determine whether animals are to be used in the course, whether class exercises involving animals are optional or required and what alternatives, if any, are available.

ANSC 101 Principles of Animal Science (3) Two hours of lecture and two hours of laboratory per week. A comprehensive course, including the development of animal science, its contributions to the economy, characteristics of animal products, factors of efficient and economical production and distribution.

ANSC 211 Anatomy of Domestic Animals (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: BIOL 105. A systematic gross and microscopic comparative study of the anatomy of the major domestic animals. Special emphasis is placed on those systems important in animal production.

ANSC 212 Applied Animal Physiology (3) Prerequisite: ANSC 211 or equivalent. The physiology of domesticated animals with emphasis on functions related to production, and the physiological adaptation to environmental influences.

ANSC 214 Applied Animal Physiology Laboratory (1) Three hours of laboratory per week. Pre- or corequisite: ANSC 212. Application of physiological laboratory techniques to laboratory and domestic animals.

ANSC 215 Comparative Animal Nutrition (3) Prerequisites: ANSC 101 and (CHEM 104 or CHEM 233). Formerly ANSC 402. Nutrients and their fundamental role in animal metabolism, in relation to their biochemical role in metabolism, digestion, absorption, and their deficiency symptoms.

ANSC 220 Livestock Management (4) Prerequisite: ANSC 101. Formerly ANSC 221. Management of meat animals including beef, sheep, and swine. Breeding, feeding management and marketing practices at the leading edge of technology for maximum economic efficiency.

ANSC 222 Meats (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: ANSC 220. Formerly ANSC 422. Meat and the factors influencing acceptability, marketing, and quality of fresh meats. Laboratory periods are conducted in packing houses, meat distribution centers, retail outlets and University Meats Laboratory.

ANSC 230 Light Horse Management (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: ANSC 101. A general course in horse management for students who intend to be involved in the care and management of light horses. The principles of nutrition, anatomy, physiology, health and disease, growth, reproduction, locomotion and basic management techniques.

ANSC 240 Dairy Cattle Management (2) Prerequisite: ANSC 220. Credit will be granted for only one of the following: ANSC 240 or ANSC 444. Formerly ANSC 444. All aspects of dairy production, including nutrition, reproduction, mastitis control, milking management, farmstead facilities, financial management and forage production.

ANSC 241 Dairy Cattle Management Practicum (1) Three hours of laboratory per week. Prerequisite: ANSC 240. Formerly ANSC 242. Practicum to parallel ANSC 240. Field trips required.

ANSC 244 Dairy Cattle Type Appraisal (1) Two laboratory periods. Prerequisite: permission of department. Laboratory. Analysis of dairy cattle type with emphasis on the comparative judging of dairy cattle.

ANSC 251 Beef and Sheep Management Practicum (1) Three hours of laboratory per week. Prerequisite: ANSC 220. Credit will be granted for only one of the following: ANSC 220 or ANSC 424. Formerly ANSC 424. Practicum to parallel ANSC 220. Field trips required.

ANSC 252 Introduction to the Diseases of Wildlife (2) Prerequisite: BIOL 105. The principal diseases of North American wildlife will be briefly considered. For each disease, specific attention will be given to the following signs evidenced by the affected animal or bird, causative agent, means of transmission and effects of the disease on the population of the species involved.

ANSC 262 Commercial Poultry Management (3) Prerequisite: ANSC 101. A symposium of finance, investment. Plant layout. Specialization, purchase of supplies and management problems in baby chick, egg, broiler and turkey production; foremanship, advertising, selling. By-products, production and financial records. Field trips required.

ANSC 271 Swine Management Practicum (1) Three hours of laboratory per week. Prerequisite: ANSC 220. Formerly ANSC 421. Practicum to parallel ANSC 220. Field trips required.

ANSC 305 Companion Animal Care (3) Prerequisite: BIOL 105. Care, and management of the companion small animals. Species covered include the cat, dog, rodents, lagomorphs, reptiles, amphibians, birds and others as class interest and schedule dictate. Basic description, evolutionary development, breeding, nutritional and environmental requirements, and public health aspects will be presented for each species.

ANSC 315 Applied Animal Nutrition (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC 215. Formerly ANSC 203. Elements of nutrition, source charactenstics and adaptability of various feedstuffs to several classes of livestock. A study of the composition of feeds, nutrient requirements and computerized formulation of economic diets and rations for livestock.

ANSC 327 Quantitative Domestic Animal Genetics (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: BIOL 222. Population and quantitative genetics as applied to domestic livestock; concepts of variation, heredity and relationship, breeding systems. Genetic evaluation, selection for improvement, and measuring genetic progress will be emphasized.

ANSC 332 Horse Management (3) Prerequisite: ANSC 230. Major topics include nutrition, reproduction, breeding, performance evaluation, basic training and management techniques.

ANSC 350 Ornithology (4) Three hours of lecture and three hours of laboratory per week. Three mandatory field trips. Prerequisite: BIOL 105. Includes systematics, anatomy, physiology, behavior, life histones, ecology, population dynamics, evolution and conservation of birds.

ANSC 370 Animal Agriculture: Scientific and Cultural Perspectives (3) Prerequisite: BIOL 105. Study will focus on the enhancement of biological efficiency that permits more extensive options for choice of human activities, within the limitations of ecological constraints. The course examines the growth of knowledge, of both cultural and scientific origin, as applied in the development of successful human-animal systems.

ANSC 397 Senior Seminar (1) Prerequisite: pd. Career and professional opportunities. Overview of professional organizations and appropriate private and governmental agencies. Preparation and presentation of animal science topics.

ANSC 398 Seminar (1) Repeatable to 2 credits if content differs. Presentation and discussion of current literature and research work in animal science.

ANSC 399 Special Problems in Animal Science (1-2) Work assigned in proportion to amount of credit. A course designed for advanced undergraduates in which specific problems relating to animal science will be assigned.

ANSC 401 Fundamentals of Nutrition (3) Prerequisite: CHEM 104 and ANSC 212. Recommended: BCHM 261. Also offered as NUSC 402. A study of the fundamental role of all nutrients in the body including their digestion, absorption and metabolism. Dietary requirements and nutritional deficiency syndromes of laboratory and farm animals and humans.

ANSC 406 Environmental Physiology (3) Prerequisite: anatomy and physiology. The specific anatomical and physiological modifications employed by animals adapted to certain stressful environments will be considered. Particular emphasis will be placed on the problems of temperature regulation and water balance. Specific areas for consideration will include: animals in cold

(including hibernation), animals in dry heat, diving animals and animals in high altitudes.

ANSC 412 Introduction to Diseases of Animals (3) Two lectures and one laboratory period per week. Prerequisite: MICB 200 and BIOL 105. This course gives basic instruction in the nature of disease: including causation, immunity, methods of diagnosis, economic importance, public health aspects and prevention and control of the common diseases of sheep, cattle, swine, horses and poultry

ANSC 413 Laboratory Animal Management (3) A comprehensive course in care and management of laboratory animals. Emphasis will be placed on physiology, anatomy and special uses for the different species. Disease prevention and regulations for maintaining animal colonies will be covered. Field trips will be required.

ANSC 415 Parasitic Diseases of Domestic Animals (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ANSC 412 or equivalent. A study of parasitic diseases resulting from protozoan and helminth infection and arthropod infestation. Emphasis on parasites of veterinary importance: their identification; life cycles, pathological effects and control by management.

ANSC 420 Animal Production Systems (4) Two hours of lecture and four hours of laboratory per week. Prerequisites: ANSC 101, ANSC 220, and (ANSC 240 or ANSC 262). Formerly ANSC 423. Effects of management and economic decisions on animal production enterprises. Computer simulations of intensive and extensive production units.

ANSC 430 Topics in Equine Science (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisites: ANSC 211; ANSC 212 and ANSC 230. Pre- or corequisite: ANSC 401. Specific problems of importance to the equine industry, including such areas as nutrition, physiology, anatomy, genetics and pathology.

ANSC 431 Horse Production (2) One hour of lecture and two hours of laboratory per week. Prerequisite: ANSC 101; ANSC 211; ANSC 212; ANSC 230 and permission of department. Laboratory and assigned project to be performed at University of Maryland Horse Farm, Ellicott City, Md. Field trips. Application of equine science principles to the management and production of horses.

ANSC 443 Physiology and Biochemistry of Lactation (3) Prerequisite: ANSC 212 or equivalent; and BCHM 261 or BCHM 461. The physiology and biochemistry of milk production in domestic animals, particularly cattle. Mammary gland development and maintenance from the embryo to the fully developed lactating gland. Abnormalities of the mammary gland.

ANSC 446 Physiology of Mammalian Reproduction (3) Prerequisite: ZOOL 422 or ANSC 212. Anatomy and physiology of reproductive processes in domesticated and wild mammals.

ANSC 447 Physiology of Mammalian Reproduction Laboratory (1) Three hours of laboratory per week. Pre- or corequisite: ANSC 446. Animal handling, artificial insemination procedures and analytical techniques useful in animal management and reproductive research.

ANSC 452 Avian Physiology (2) Two two-hour lecture/laboratory/demonstration periods per week. Prerequisite: a basic course in animal anatomy or physiology. The digestive, immune, excretory, respiratory, muscle, circulatory, endocrine and nervous systems of avian species. Laboratory exercises include use of anesthetics, suturing techniques, use of a polygraph and instrumentation for analyzing blood, urine, liver, kidney and brain tissue.

ANSC 453 Animal Welfare (3) Prerequisite: ANSC 101 or ZOOL 210 or permission of department. Ethical concerns pertinent to the use of animals in modern society. Historical and philosophical aspects of human/animal interrelationships, animal intelligence and awareness, and the treatment of animals in agriculture and scientific research will be considered.

ANSC 455 Applied Animal Behavior (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: (ANSC 101 or BIOL 106) and BIOL 222. Principles of animal behavior applied to production systems in animal agriculture.

ANSC 462 Physiology of Hatchability (1) Two lectures and one laboratory period per week. Prerequisite: BIOL 105. The physiology of embryonic development as related to principles of hatchability and problems of incubation encountered in the hatchery industry are discussed.

ANSC 489 Current Topics in Animal Science (1-3) Prerequisite: pd. Repeatable to 6 credits if content differs. Examination of current developments in the animal sciences.

ANTH — Anthropology

ANTH 101 Introduction to Anthropology: Archaeology and Physical Anthropology (3) May be taken for credit in the general education program. General patterns of the development of human culture; the biological and morphological aspects of man viewed in his cultural setting.

ANTH 102 Introduction to Anthropology: Cultural Anthropology and Linguistics (3) Social and cultural principles as exemplified in ethnographic descriptions. The study of language within the context of anthropology.

ANTH 221 Man and Environment (3) A geographical introduction to ethnology, emphasizing the relations between cultural forms and natural environment.

ANTH 241 Introduction to Archaeology (3) A survey of the basic aims and methods of archeological field work and interpretation, with emphasis on the reconstruction of prehistoric ways of life.

ANTH 298 Special Topics in Anthropology (3) Repeatable to 6 credits if content differs. Anthropological perspectives on selected topics of broad general interest.

ANTH 361 Human Evolution and Fossil Man (3) A survey of the basic principles of human evolution as seen by comparative anatomic study of fossil specimens.

ANTH 371 Introduction to Linguistics (3) Introduction to the basic concepts of modern descriptive linguistics. Phonology, morphology, syntax. Examinations of the methods of comparative linguistics, internal reconstruction, dialect geography.

ANTH 389 Research Problems (1-6) Prerequisite: permission of department. Introductory training in anthropological research methods. The student will prepare a paper embodying the results of an appropriate combination of research techniques applied to a selected problem in any field of anthropology.

ANTH 397 Anthropological Theory (3) Prerequisite: permission of department. A survey of the historical development and current emphasis in the theoretical approaches of all fields of anthropology, providing an integrated frame of reference for the discipline as a whole.

ANTH 401 Cultural Anthropology: Principles and Processes (3) Prerequisites: ANTH 101, ANTH 102, or ANTH 221. An examination of the nature of human culture and its processes, both historical and functional. The approach will be topical and theoretical rather than descriptive.

ANTH 402 Cultural Anthropology: World Ethnography (3) Prerequisites: ANTH 101, ANTH 102, or ANTH 221. A descriptive survey of the culture areas of the world through an examination of the ways of selected representative societies.

ANTH 424 Ethnology of North America (3) Prerequisites: ANTH 101 and ANTH 102. The native people and cultures of North America north of Mexico and their historical relationships, including the effects of contact with European-derived populations.

ANTH 426 Ethnology of Middle America (3) Prerequisites: ANTH 101 and ANTH 102. Cultural background and modern social, economic and religious life of Indian and Mesitzo groups in Mexico and central America; processes of acculturation and currents in cultural development.

ANTH 431 Social Organization of Primitive Peoples (3) Prerequisites: ANTH 101 and ANTH 102. A comparative survey of the structures of non-literate and folk societies, covering both general principles and special regional developments.

ANTH 434 Religion of Primitive Peoples (3) Prerequisites: ANTH 101 and ANTH 102. A survey of the religious systems of primitive and folk societies, with emphasis on the relation of religion to other aspects of culture.

ANTH 437 Politics and Government in Primitive Society (3) A combined survey of politics in human societies and of important anthropological theories concerning this aspect of society

ANTH 441 Archaeology of the Old World (3) Prerequisite: ANTH 101 or ANTH 241. A survey of the archaeological materials of Europe, Asia and Africa, with emphasis on chronological and regional interrelationships.

ANTH 451 Archaeology of the New World (3) Prerequisite: ANTH 101 or ANTH 241. A survey of the archaeological materials of North and South America with emphasis on chronological and regional interrelationships.

ANTH 461 Human Osteology Laboratory (3) Prerequisite: ANTH 101. A laboratory study of the human skeleton, its morphology, measurement, and anatomic relationships.

ANTH 466 Forensic Anthropology Laboratory (3) Prerequisite: ANTH 461 or permission of department. A laboratory study of the methods used to identify human remains by anthropological techniques and discussion of the role of the anthropologist in medico-legal investigation.

ANTH 496 Field Methods in Archaeology (8) Formerly ANTH 499. Field training in the techniques of archaeological survey and excavation.

ANTH 498 Field Methods in Ethnology (1-6) Field training in the collection and recording of ethnological data.

APDS — Design

APDS 431 Advanced Problems in Advertising Design (3) Two studio periods per week. Prerequisite: APDS 430 or DESN 430. For advertising design majors only. Advanced problems in design and layout planned for developing competency in one or more areas of advertising design.

ARCH — Architecture

ARCH 170 Introduction to the Built Environment (3) Introduction to conceptual, perceptual, behavioral and technical aspects of environmental design; methods of analysis, problem solving and project implementation.

ARCH 217 Technology, Human Settlements, and Shelter (3) A survey of developments in technology through history and their impacts and influences on the form and fabric of human settlements and shelter. Emphasis on the technologies most relative to examples of buildings in cities in North America and Europe.

ARCH 220 History of Architecture I (3) Survey of Western architectural history to the Renaissance. With consideration of parallel developments in the Eastern World.

ARCH 221 History of Architecture II (3) Prerequisite: ARCH 220 or permission of department. Survey of Western architectural history from the Renaissance to the Twentieth Century. With consideration of parallel developments in the Eastern World.

ARCH 222 History of Western Architecture (3) Prerequisite: ARCH 170 or permission of department. Not open to students who have completed ARCH 220, ARCH 221, ARTH 340 or ARTH 341. Survey of the major monuments and styles of western architectural history from the ancient world to the twentieth century.

ARCH 223 History of Non-Western Architecture (3) Survey of architectural history including prehistoric and vernacular; ancient civilizations of Egypt, Mesopotamia and the Indus valley; the Islamic world; Hindu and Buddhist traditions of Asia; and pre- European Africa and the Americas.

ARCH 242 Drawing I (2) Introduces the student to basic techniques of sketching and use of various media.

ARCH 250 Survey of Urban Planning (3) A survey of urban development and planning; ancient through modern cities; focus on the roots of modern planning in 19th and 20th century England and America; study of a planning issue in the Baltimore-Washington Metropolitan area.

ARCH 312 Architectural Structures I (3) Prerequisites: MATH 220; and PHYS 122. Recommended: ARCH 401. For ARCH majors only. Principles of behavior displayed in architectural structural systems, elements and materials; equilibrium and stability, distribution of forces and stresses, strength and stiffness. Resolutions of forces, reactions, movements, shears, deflection, and buckling of systems and elements.

ARCH 313 Environmental Control and Systems I (3) Prerequisite: MATH 220, PHYS 122, ARCH 401. For majors only. Theory, quantification, and architectural design applications for mechanical systems and acoustics.

ARCH 343 Drawing II: Line Drawing (3) Studio, four hours per week. Six hours of laboratory per week. Prerequisite: ARCH 400 or permission of department. For ARCH majors only. Basic free hand line drawing for architectural perception and design.

ARCH 375 Architectural Construction and Materials (3) Prerequisite: MATH 220, PHYS 122. For majors only. Construction processes of building; related terminology; review of primary building materials; physical characteristics; use and performance of materials as related to environmental forces.

ARCH 400 Architecture Studio I (6) Three hours of lecture and nine hours of studio per week. Prerequisite: ARCH majors only. Introduction to the processes of visual and architectural design including field problems.

ARCH 401 Architecture Studio II (6) Three hours of lecture and nine hours of studio per week. Prerequisite: ARCH 400 with a grade of C or better. For ARCH majors only. Continuation of ARCH 400.

ARCH 402 Architecture Studio III (6) Three hours of lecture and nine hours of studio per week. Prerequisite: ARCH 401 with a grade of C or better. For ARCH majors only. Design projects involving the elements of environmental control, basic structural systems, building processes and materials.

ARCH 403 Architecture Studio IV (6) Prerequisite: ARCH 402 with a grade of C or better. For ARCH majors only. Three hours of lecture and nine hours of studio per week. Design projects involving forms generated by different structural systems, environmental controls and methods of construction.

ARCH 408 Selected Topics in Architecture Studio (1-6) Prerequisite: ARCH 403 or equivalent and permission of department. Repeatable to 6 credits if content differs. Topical problems in architecture and urban design.

ARCH 410 Technology I (4) Prerequisites: MATH 220; and {(PHYS 121 and PHYS 122) or PHYS 117}. Corequisite: ARCH 400. For ARCH majors only. First course in a four course sequence which develops the knowledge and skills of architectural technology. Addresses climate, human responses to climate, available materials, topography and impact on culture. Principles of assembly, basic structural principles and philosophies of construction.

ARCH 411 Technology II (4) Prerequisite: ARCH 410. Corequisite: ARCH 401. For ARCH majors only. Second course in a four course sequence. Building construction processes and terminology; use and performance characteristics of primary building materials; principles of structural behavior related to the building systems; equilibrium and stability, stiffness and strength, types of stress, distribution of force and stress, resolution of forces, reactions, bending moments, shear, deflection, buckling.

ARCH 412 Architectural Structures II (3) Prerequisite: ARCH 312, ARCH 400. For ARCH majors only. Design of steel, timber, and reinforced concrete elements, and subsystems; analysis of architectural building systems. Introduction to design for both natural and man-made hazards.

ARCH 415 Environmental Control and Systems II (3) Prerequisite: ARCH 313, ARCH 402. For ARCH majors only. Theory, quantification, and architectural design applications for water systems, fire protection, electrical systems, illumination, signal equipment, and transportation systems.

ARCH 418 Selected Topics in Architectural Science (1-4) Prerequisite: permission of department. Repeatable to 7 credits if content differs.

ARCH 419 Independent Studies in Architectural Science (1-4) Repeatable to 7 credits. Proposed work must have a faculty sponsor and receive approval of the curriculum committee.

ARCH 420 History of American Architecture (3) Prerequisite: ARCH 221 or permission of department. American architecture from the late 17th to the 20th century.

ARCH 422 History of Greek Architecture (3) Prerequisite: ARCH 220 or permission of department. Survey of Greek architecture from 750-100 B.C.

ARCH 423 History of Roman Architecture (3) Prerequisite: ARCH 220 or permission of department. Survey of Roman architecture from 500 B.C. To A.D. 325.

ARCH 426 Fundamentals of Architecture (3) Prerequisite: admission to 3 1/2 year M. ARCH program. Thematic introduction of a variety of skills, issues, and ways of thinking that bear directly on the design and understanding of the built world.

ARCH 427 Theories of Architecture (3) Prerequisite: ARCH 221 or permission of department. For ARCH majors only. Selected historical and modern theories of architectural design.

ARCH 428 Selected Topics in Architectural History (1-3) Prerequisite: permission of department. Repeatable to 7 credits if content differs.

ARCH 429 Independent Studies in Architectural History (1-4) Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the curriculum committee.

ARCH 432 History of Medieval Architecture (3) Prerequisite: ARCH 220 or permission of department. Architecture of western Europe from the early Christian and Byzantine periods through the late Gothic, with consideration of parallel developments in the eastern world.

ARCH 433 History of Renaissance Architecture (3) Prerequisite: ARCH 221 or permission of department. Renaissance architectural principles and trends in the 15th and 16th centuries and their modifications in the Baroque period.

ARCH 434 History of Modern Architecture (3) Prerequisite: ARCH 221 or permission of department. Architectural trends and principles from 1750 to the present, with emphasis on developments since the mid-19th century.

ARCH 435 History of Contemporary Architecture (3) For ARCH majors only. Concentration on the developments in architecture in Europe and the U.S.since World War II, their antecedents in the 1920s and 1930s, and the various reactions to modernism in the post-war era.

ARCH 436 History of Islamic Architecture (3) Prerequisite: ARCH 220 or permission of department. Survey of Islamic architecture from the seventh through the eighteenth century.

ARCH 437 History of Pre-Columbian Architecture (3) Architecture of Pre-Columbian Mexico and Central America from the Pre-Classic Period through the Spanish conquest.

ARCH 442 Studies in Visual Design (3) Prerequisite: ARCH 401. Studio work in visual design independent of architectural problem solving.

ARCH 443 Visual Communication (2) Two hours of lecture and two hours of laboratory per week. Prerequisite: admission to the 3 1/2 year M. ARCH program. For ARCH majors only. Investigation of the relationship between drawing from life and architectural drawing, the conventions of architectural drawing and the role of architectural drawing as a means to develop, communicate, and generate architectural ideas.

ARCH 445 Visual Analysis of Architecture (3) Two hours of lecture and two hours of studio per week. Prerequisite: ARCH 401 and ARCH 343, or permission of department. Visual principles of architectural design through graphic analysis.

ARCH 448 Selected Topics in Visual Studies (1-4) Prerequisite: permission of department. Repeatable to 7 credits if content differs.

ARCH 449 Independent Studies in Visual Studies (1-4) Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the curriculum committee.

ARCH 450 Introduction to Urban Planning (3) Introduction to city planning theory, methodology and techniques, dealing with normative, urban, structural, economic, social aspects of the city; urban planning as a process. Architectural majors or by permission of the instructor. Lecture, seminar, 3 hours per week.

ARCH 451 Urban Design Seminar (3) Prerequisite: ARCH 350 or permission of department. Advanced investigation into problems of analysis and evaluation of the design of urban areas, spaces and complexes with emphasis on physical and social considerations, effects of public policies, through case studies. Field observations.

ARCH 453 Urban Problems Seminar (3) Prerequisite: permission of department. A case study of urban development issues, dealing primarily with socio-economic aspects of changes in the built environment.

ARCH 454 Theories of Urban Form (3) Theories of planning and design of urban spaces, building complexes, and new communities

ARCH 459 Independent Studies in Urban Planning (1-4) Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the curriculum committee.

ARCH 460 Site Analysis and Design (3) Prerequisite: ARCH majors only or permission of department. Principles and methods of site analysis; the influence of natural and man-made site factors on site design and architectural form.

ARCH 461 Design and Energy (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ARCH 402 and ARCH 415. Energy strategies in building related to the broader context of architectural problem solving.

ARCH 470 Computer Applications in Architecture (3) Prerequisite: ARCH 400 or permission of department. Introduction to computer programming and utilization, with emphasis on architectural applications.

ARCH 472 Economic Determinants in Architecture (3) Introduction to economic factors influencing architectural form and design, including land economics, real estate, financing, project development, financial planning, construction and cost control.

ARCH 478 Selected Topics in Architecture (1-4) Prerequisite: permission of department. Repeatable to 7 credits if content differs.

ARCH 479 Independent Studies in Architecture (1-4) Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the curriculum committee.

ARCH 480 Problems and Methods of Architectural Preservation (3) Prerequisite: ARCH 420 or permission of department. Theory and practice of preservation in America, with emphasis on the problems and techniques of community preservation.

ARCH 481 The Architect in Archaeology (Prerequisite: permission of department. The role of the architect in field archaeology and the analysis of excavating, recording, and publishing selected archaeological expeditions.

ARCH 482 The Archaeology of Roman and Byzantine Palestine (3) Archaeological sites in Palestine (Israel and Jordan) from the reign of Herod the Great to the Moslem conquest.

ARCH 483 Field Archaeology (3) Prerequisite: permission of department. Participation in field archaeology with an excavation officially recognized by proper authorities of local government.

ARCH 488 Selected Topics in Architectural Preservation (1-4) Prerequisite: permission of department. Repeatable to 7 credits if content differs.

ARCH 489 Independent Studies in Architectural Preservation (1-4) Repeatable to 6 credits. Proposed work must have a faculty sponsor and receive approval of the curriculum committee

AREC — Agriculture and Resource Economics

AREC 227 Marketing Agricultural Products (3) The development of marketing, its scope, channels, and agencies of distribution, functions, costs, methods used and services rendered

AREC 240 Introduction to Economics and the Environment (3) Costs and social impacts of pollution and human crowding in the modern environment. The economic, legal and institutional causes of these problems

Public policy approaches to solutions and the costs and benefits of alternative solutions

AREC 250 Elements of Agricultural and Resource Economics (3) An introduction to economic principles of production, marketing, agricultural prices and incomes, farm labor, credit, agricultural policies, and government programs.

AREC 306 Farm Management (3) The organization and operation of the farm business to obtain an income consistent with family resources and objectives. Principles of production economics and other related fields as applied to the individual farm business.

AREC 310 Horse Industry Economics (3) Prerequisites: (AREC 250 and ECON 203) and (ANSC 101 or pd). Economic forces affecting the horse industry and the economic tools required by horse farm managers, trainers and others in the industry. The business aspects of the horse industry, emphasizing the applied analysis of economic factors.

AREC 365 World Hunger, Population, and Food Supplies (3) An introduction to the problem of world hunger and possible solutions to it. World demand, supply, and distribution of food. Alternatives for leveling off world food demand, increasing the supply of food, and improving its distribution. Environmental limitations to increasing world food production.

AREC 399 Special Problems (1-2) Concentrated reading and study in some phase of problem in agricultural economics.

AREC 404 Prices of Agricultural Products (3) Prerequisite: ECON 306. An introduction to agricultural price behavior. The use of price information in the decision-making process, the relation of supply and demand in determining agricultural prices, and the relation of prices to grade, time, location, and stages of processing in the marketing system. Elementary methods of price analysis, the concept of parity and the role of price support programs in agricultural decisions.

AREC 405 Economics of Agricultural Production (3) Prerequisite: ECON 306 and MATH 220. The use and application of production economics in agriculture and resource industries through graphical and mathematical approaches. Production functions, cost functions, multiple product and joint production, and production processes through time.

AREC 407 Agricultural Finance (3) Prerequisite: AREC 250. Application of economic principles to develop criteria for a sound farm business, including credit source and use, preparing and filing income tax returns, methods of appraising farm properties, the summary and analysis of farm records, leading to effective control and profitable operation of the farm business.

AREC 414 Agricultural Business Management (3) Prerequisite: AREC 250. The different forms of businesses. Management functions, business indicators, measures of performance, and operational analysis. Case studies are used to show applications of management techniques.

AREC 427 Economics of Agricultural Marketing Systems (3) Prerequisite: AREC 250. Basic economic theory as applied to the marketing of agricultural products, including price, cost, and financial analysis. Current developments affecting market structure including effects of contractual arrangement, vertical integration, governmental policies and regulation.

AREC 432 Introduction to Natural Resources Policy (3) Development of natural resource policy and analysis of the evolution of public intervention in the use of natural resources. Examination of present policies and of conflicts between private individuals, public interest groups, and government agencies.

AREC 433 Food and Agricultural Policy (3) Prerequisite: AREC 250. Economic and political context of governmental involvement in the farm and food sector. Historical programs and current policy issues. Analysis of economic effects of agricultural programs, their benefits and costs, and comparison of policy alternatives. Analyzes the interrelationship among international development, agricultural trade and general economic and domestic agricultural policies.

AREC 445 Agricultural Development in the Third World (3) Prerequisite: ECON 203 or ECON 205 or AREC 250. Development theories, the role of agriculture in economic development, the agricultural policy environment, policies impacting on rural income and equity, environmental impacts of agricultural development.

AREC 453 Natural Resources and Public Policy (3) Prerequisite: AREC 250 and ECON 203. Rational use and reuse of natural resources. Theory, methodology, and policies concerned with the allocation of natural resources among alternative uses. Optimum state of conservation, market failure, safe minimum standard, and cost-benefit analysis.

AREC 484 Introduction to Econometrics in Agriculture (3) An introduction to the application of econometric techniques to agricultural problems with emphasis on the assumptions and computational techniques necessary to derive statistical estimates, test hypotheses, and make predictions with the use of single equation models. Includes linear and non-linear regression models, internal least squares, discriminant analysis and factor analysis.

AREC 489 Special Topics in Agricultural and Resources Economics (3) Repeatable to 9 credits.

ARHU—Arts and Humanities

ARHU 308 Critical Eras: An Interdisciplinary View (3) Repeatable to 6 credits if content differs. An interdisciplinary exploration of a critical period, ranging from a year to an era, stressing the relationship between different forms of human expression and the social milieu.

ARHU 309 Forms and Forces of Human Experience: An Interdisciplinary Exploration (3) Prerequisite: one course in at least one of the departments participating in the particular section. Repeatable to 6 credits if content differs. An interdisciplinary analysis of a particular social or cultural topic, attitude, or concern.

ARSC—Air Science

ARSC 100 The Air Force Today I (1) One hour of lecture and one hour of laboratory per week. Study of U.S. Air Force in contemporary society. Survey of Air Force doctrine, mission, organization and systems. Freshman course for AFROTC Cadets. Open to all university students.

ARSC 101 The Air Force Today II (1) Continuation of ARSC 100. The mission, organization and systems of U.S. Air Force offensive, defensive, and aerospace support forces and the use of these forces to support contemporary societal demands. Freshman year course for AFROTC cadets. Open to all university students.

ARSC 110 Fundamentals of Flying (1) A study of basic aviation knowledge for the beginning student pilot. The basic principles of flight; simple aerodynamics, a description of aircraft systems and flight instruments, basic meteorology, the use of the flight computer for simple flight computations and visual flight operations (VFR).

ARSC 200 The Development of Air Power I (1) Development of air power from balloons and dirigibles through employment in World War I and II. Chronological approach to growth of air power in response to civil and military requirements. Sophomore year course for AFROTC cadets. Open to all university students.

ARSC 201 The Development of Air Power II (1) One hour of lecture and one hour of laboratory per week. Growth and development of air power and aerospace support forces from 1945 in response to Korea, the Cold War, Southeast Asia, and the Space Age. The peaceful employment of aerospace forces for relief and civic action program. Sophomore year course for AFROTC cadets. Open to all university students.

ARSC 205 The U.S. Air Force and Air Power (4) Open only to applicants selected by AFROTC to compete for entrance into the two-year AFROTC program as a contract cadet. Six week field training session held during summer months at designated Air Force bases. Successful completion is a pre-requisite for acceptance into the two year AFROTC program. Course content consists of a combination of academics, physical training and leadership laboratory experiences approximating those four year cadets gain in ARSC 100/101 and ARSC 200/201.

ARSC 310 Management and Leadership I (3) Study of management functions, techniques and skills. Emphasis on application of same in laboratory environment structured to approximate a contemporary military or bureaucratic organization. Junior year course for AFROTC cadets. Open to all university students.

ARSC 311 Management and Leadership II (3) Continuation in study and application of management and leadership skills to a contemporary military environment. Emphasis on leadership, the uniform code of military justice and current issues for the military manager and leaders. Junior year course for AFROTC cadets. Open to all university students.

ARSC 320 National Security Forces in Contemporary American Society I (3) The role of the military profession in contemporary American society, its responsibilities to society and its impact on society. The definition, development and alteration of defense policy in supporting national objectives. Senior year course for AFROTC cadets. Open to all university students.

ARSC 321 National Security Forces in Contemporary American Society II (3) A continuation of the study on the formulation, development and alteration of strategy and of the factors in the modern world which necessitate the continuous reassessment of American defense policy. Investigation of the interplay of various governmental agencies in the formulation of American defense policy. Senior year AFROTC course. Open to all university students.

ARTH—Art History and Archaeology

ARTH 100 Introduction to Art (3) No credit toward the major can be received for this course. Major approaches to understanding the visual arts, and includes analysis of techniques, subject matter, and form. Painting, sculpture, architecture, and the graphic arts.

ARTH 200 Art of the Western World I (3) Formerly ARTH 260. Painting, sculpture, and architecture from prehistoric times to the Renaissance.

ARTH 201 Art of the Western World II (3) Formerly ARTH 261. Painting, sculpture, and architecture from the Renaissance to the present.

ARTH 275 Art of Africa (3) Formerly ARTH 284. Appreciation of the art of African cultures. A survey of African culture through painting, sculpture, and architecture from prehistoric times to the present.

ARTH 290 Art of Asia (3) Formerly ARTH 262. South and East Asian art from prehistory through the mid-nineteenth century.

ARTH 355 Twentieth-Century Art (3) No credit toward the major can be received for this course. Survey of major trends in painting and sculpture, in Europe and America, from approximately 1900 to the present.

ARTH 378 Special Topics for Honors Students (3) Prerequisites: admission to art history honors and permission of department. For ARTH majors only. Repeatable to 6 credits. Writing of a research paper. With an instructor's permission work may be done in conjunction with a graduate colloquium or seminar.

ARTH 379 Honors Thesis (3-6) Prerequisites: admission to art history honors and permission of department. For ARTH majors only. Repeatable to 6 credits. Research and writing of an honors thesis under the supervision of a faculty advisor.

ARTH 380 Masterpieces of Painting (3) No credit toward the major can be received for this course. Formerly ARTH 320. Selected masterworks of painting, revealing the creative process, artistic personality, and cultural context of these works.

ARTH 381 Masterpieces of Sculpture (3) No credit toward the major can be received for this course. Formerly ARTH 330. Selected masterworks of sculpture, revealing the creative process, artistic personality, and cultural context of these works.

ARTH 382 Masterpieces of Architecture (3) No credit toward the major can be received for this course. Formerly ARTH 340. Selected masterworks of architecture, revealing the creative process, artistic personality, and cultural context of these works.

ARTH 390 Art of China (3) Formerly ARTH 406. A chronological survey of Chinese painting, sculpture, and the applied arts.

ARTH 395 Art of Japan (3) Formerly ARTH 407. A chronological survey of Japanese painting, sculpture, architecture, and the applied arts.

ARTH 400 Egyptian Art and Archaeology (3) Formerly ARTH 404. Sites and monuments of painting, sculpture, architecture, and the minor arts of ancient Egypt from earliest times through the Roman conquest Emphasis on the pharaonic period.

ARTH 401 Aegean Art and Archaeology (3) Formerly ARTH 404 Sites and monuments of painting, sculpture, architecture, and the minor arts of Crete, the Cycladic islands, and the Greek mainland from the earliest times to the downfall of the Mycenaean empire.

ARTH 402 Greek Art and Archaeology (3) Sites and monuments of painting, sculpture, architecture, and the minor arts from the Geometric through the Hellenistic period with emphasis on mainland Greece in the Archaic and Classical periods.

ARTH 403 Roman Art and Archaeology (3) Sites and monuments of painting, sculpture, architecture, and the minor arts from the earliest times through the third century A.D. with emphasis on the Italian peninsula from the Etruscan period through that of Imperial Rome.

ARTH 405 Late Roman and Early Christian Art (3) Formerly ARTH 410. Painting, sculpture, architecture, and the minor arts from the early third century through the sixth century A.D.

ARTH 406 Byzantine Art (3) Formerly ARTH 411. Painting, sculpture, architecture, and the minor arts from the seventh century to 1453 A.D.

ARTH 410 Early Medieval Art (3) Formerly ARTH 412. Painting, sculpture and architecture in Western Europe, ca. 500-1150.

ARTH 411 Gothic Art (3) Formerly ARTH 413. Painting, sculpture and architecture in Western Europe, ca 1150-1400.

ARTH 415 Italian Renaissance Art (3) Formerly ARTH 424. Painting, sculpture and architecture of the fifteenth and sixteenth centuries.

ARTH 418 Special Problems in Italian Renaissance Art (3) Repeatable to 6 credits if content differs. Focus upon Aspects of painting, sculpture, and architecture of Renaissance.

ARTH 420 Fourteenth and Fifteenth-Century Northern European Art (3) Formerly ARTH 416. The art of northern Europe with an emphasis on painting in the Netherlands and France.

ARTH 425 Sixteenth-Century Northern European Painting (3) Formerly ARTH 417. Painting in France, Germany, England, and the Low Countries during the Renaissance and Reformation.

ARTH 426 Renaissance and Baroque Sculpture in Northern Europe (3) Sculpture in France, Germany, England, and the Low Countries from the fourteenth to the seventeenth century.

ARTH 430 Seventeenth-Century European Art (3) Painting, sculpture and architecture concentrating on Italy, Spain, France, and England.

ARTH 435 Seventeenth-Century Art in the Netherlands (3) Formerly ARTH 431. Painting, sculpture and architecture in seventeenth-century Netherlands.

ARTH 443 Eighteenth-Century European Art (3) From the Rococo to Neo-classicism, major developments in painting, architecture, sculpture, and the landscape garden in eighteenth-century France, England, Italy, Spain, and Germany

ARTH 444 British Painting, Hogarth to the Pre-Raphaelites (3) A survey of British painting focusing on the establishment of a strong native school in the genres of history painting, narrative subjects, portraiture, sporting art, and landscape.

ARTH 445 Nineteenth-Century European Art to 1850 (3) Formerly ARTH 440. The major trends from Neo-Classicism to Romanticism in painting, sculpture and architecture in Europe.

ARTH 446 Nineteenth-Century European Art from 1850 (3) Formerly ARTH 441. The major trends from Realism through Impressionism to Symbolism and Art Nouveau, in painting, sculpture, and architecture.

ARTH 453 History of American Art to 1876 (3) Painting, sculpture, architecture, and decorative arts in North America from the colonial period to 1876.

ARTH 454 Nineteenth and Twentieth Century Sculpture (3) Trends in sculpture from Neo-Classicism to the present.

ARTH 455 Twentieth-Century Art to 1945 (3) Formerly ARTH 450. Painting, sculpture and architecture in Europe and America from the late nineteenth century to the end of World War II.

ARTH 456 Twentieth-Century Art from 1945 (3) Formerly ARTH 451. Painting, sculpture and architecture in Europe and America from 1945 to the present.

ARTH 457 History of Photography (3) Formerly ARTH 452. History of photography as art from its inception in 1839 to the present.

ARTH 460 American Art Since 1876 (3) Formerly ARTH 477. Painting, sculpture, architecture, and the decorative arts in North America after 1876.

ARTH 462 Twentieth-Century Black American Art (3) Formerly ARTH 474. The visual arts of Black Americans in the twentieth century, including crafts and decorative arts.

ARTH 466 Feminist Perspectives on Women in Art (3) Principal focus on European and American women artists of the 19th and 20th centuries, in the context of the new scholarship on women.

ARTH 470 Latin American Art and Archaeology before 1500 (3) Pre-Hispanic painting, sculpture, and architecture, with a focus on the major archaeological monuments of Mexico.

ARTH 471 Latin American Art and Archaeology after 1500 (3) The effect of mingling European visual ideas with pre-Hispanic traditions. The formation of Latin American colonial art. How native American people transformed European ideas and forms.

ARTH 475 Ancient Art of Africa (3) Formerly ARTH 462. Art of the African continent from rock art through the nineteenth century. The cultural meaning of painting, sculpture, architecture, and artifacts from major archeological sites.

ARTH 476 Living Art of Africa (3) Formerly ARTH 463. Art styles among the segmentary, centralized and nomadic people of Africa. The iconography and function of their art and its relationship to their various societies, cults and ceremonies.

ARTH 483 Structure and Analysis of Art (3) Basic concepts of structuralism applied to the analysis of art. Visual examples, including photography, cartoons, painting, and sculpture, emphasize the underlying logic of narrative themes in Western art ranging from the time of Giotto to the present.

ARTH 489 Special Topics in Art History (3) Prerequisite: permission of department. Repeatable to 6 credits.

ARTH 490 Chinese Painting (3) Chinese painting history from the second century B.C. through the twentieth century, covering cultural, stylistic and theoretical aspects.

ARTH 495 Japanese Painting (3) Formerly ARTH 405. Japanese painting from the sixth through the nineteenth century, including Buddhist icon painting, narrative scrolls, and Zen-related ink painting.

ARTH 498 Directed Studies in Art History I (2-3) Prerequisite: permission of department. Repeatable if content differs. Junior standing.

ARTH 499 Directed Studies in Art History II (2-3)

ARTT—Art Studio

ARTT 100 Elements of Two-Dimensional Form and Space (3) Two hours of lecture and two hours of laboratory per week. Formerly ARTS 100. Principles and elements of pictorial space examined through the manipulation and organization of various materials.

ARTT 110 Elements of Drawing I (3) Six hours of laboratory per week. Formerly ARTS 110. Media and related techniques to depict still-life, figure and nature.

ARTT 150 Introduction to Art Theory (3) Examination of contemporary art, review of global, philosophic and critical positions by the examination of works of art.

ARTT 200 Elements of Three-Dimensional Form and Space (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ARTT 100. Formerly ARTS 200. Three-dimensional form and space examined through the manipulation and organization of various materials.

ARTT 208 Intermediate Special Topics in Art (3) Six hours of laboratory per week. Prerequisites: ARTT 110, and ARTT 200. Repeatable to 6 credits if content differs. Formerly ARTS 208. Development of student's work on an intermediate studio level within the context of a special topic.

ARTT 210 Elements of Drawing II (3) Six hours of laboratory per week. Prerequisite: ARTT 110. Formerly ARTS 210. Continuation of ARTT 110 with additional emphasis on pictorial space.

ARTT 215 Anatomical Drawing (3) Six hours of laboratory per week. Prerequisite: ARTT 210 or permission of department. Formerly ARTS 215. A drawing course based on the study of anatomical structure emphasizing the human body.

ARTT 277 Architectural Presentation (3) Six hours of laboratory per week. Prerequisites: ARTT 100; and ARTT 110. Formerly ARTS 277. Techniques of wash and watercolor in architectural, interior and landscape architectural rendering.

ARTT 320 Elements of Painting (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 320. Basic tools and language of painting. Oil and/or water-based paints.

ARTT 330 Elements of Sculpture: Metal Casting (3) Six hours of laboratory per week. Prerequisites: ARTT 200, and ARTT 210. Formerly ARTS 330. Basic sculptural techniques and processes related to metal casting

ARTT 331 Elements of Sculpture: Steel (3) Six hours of laboratory per week. Prerequisites: ARTT 200; and ARTT 210. Basic techniques related to steel fabricated sculpture; torch cutting and welding, arc welding, hot forging.

ARTT 332 Elements of Sculpture: Stone (3) Six hours of laboratory per week. Prerequisites: ARTT 200; and ARTT 210. Formerly ARTT 335. Basic sculptural techniques and processes using stone and related materials.

ARTT 333 Elements of Sculpture: Wood and Mixed Media (3) Six hours of laboratory per week. Prerequisites: ARTT 200; and ARTT 210. Basic sculptural techniques and processes using wood and mixed media

ARTT 334 Elements of Sculpture: Construction (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 334 Basic techniques and processes related to metals, plastics, fiberglass and wood construction.

ARTT 340 Elements of Printmaking: Intaglio (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 340. Basic techniques and processes related to etching, aquatint and drypoint.

ARTT 341 Elements of Printmaking: Woodcut and Relief (3) Six hours of laboratory per week Prerequisite: ARTT 210. Formerly ARTS 341 Basic techniques and processes related to woodcuts, linocuts and other relief media.

ARTT 342 Elements of Printmaking: Collagraphy (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 342 Basic techniques and processes related to collagraph printing

ARTT 343 Elements of Printmaking: Screen Printing (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 343. Basic techniques and processes related to serigraph and silkscreen printing.

ARTT 344 Elements of Printmaking: Lithography (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Formerly ARTS 344 Basic techniques and processes related to drawing, preparing and printing images on lithograph stones or plates.

ARTT 404 Experiments in Visual Processes (3) Six hours of laboratory per week. Prerequisite: ARTT 220 or

ARTT 330 or ARTT 340. Formerly ARTS 404. Investigation and execution of process oriented art. Group and individual experimental projects.

ARTT 418 Drawing (3) Six hours of laboratory per week. Prerequisite: ARTT 210. Repeatable to 12 credits. Formerly ARTS 418. Original compositions from the figure and nature, supplemented by problems of personal and expressive drawing.

ARTT 428 Painting (3) Six hours of laboratory per week. Prerequisite: ARTT 320. Repeatable to 12 credits. Formerly ARTS 428. Original compositions based upon nature, figure, still life and expressive painting emphasizing development of personal directions.

ARTT 438 Sculpture (3) Six hours of laboratory per week. Prerequisites: one 300-level sculpture course; and permission of department. Repeatable to 12 credits. Formerly ARTS 438. Continuation of 300-level elements of sculpture courses with emphasis on developing personal directions in chosen media.

ARTT 448 Printmaking (3) Six hours of laboratory per week. Prerequisites: one 300-level printmaking course; and permission of department. Repeatable to 12 credits. Formerly ARTS 448. Continuation of 300-level elements of printmaking courses with emphasis on developing personal directions in chosen media.

ARTT 460 Seminar in Art Theory (3) Prerequisite: permission of department. Senior standing. Exploration of relationship between content and processes of art in a contemporary multi-cultural context.

ARTT 461 Readings in Art Theory (3) Prerequisite: senior standing or permission of department. Reading and critical analysis in contemporary art.

ARTT 462 Artist's Survival Seminar (3) Prerequisite: senior standing or permission of department. Business aspects of being an artist with emphasis on starting and maintaining a professional career.

ARTT 463 Principles and Theory: African-American Art (3) Not open to students who have completed ARTH 474. Formerly ARTH 474. Principles basic to the establishment of aesthetic theories common to an ethnic or minority art examined through the works of art by Americans of African ancestry.

ARTT 468 Seminar on the Interrelationship between Art and Art Theory (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Formerly ARTS 468. The relationship between a student's work and the theoretical context of contemporary art.

ARTT 478 Papermaking (3) Six hours of laboratory per week. Prerequisite: permission of department. Repeatable to 6 credits if content differs. Traditional and contemporary Western papermaking techniques with emphasis on creative approaches and continued individual artistic growth.

ARTT 489 Advanced Special Topics in Art (3) Six hours of laboratory per week. Prerequisite: permission of department. Repeatable to 6 credits if content differs. Formerly ARTS 489. Development of student's work on an advanced studio level within the context of a special topic.

ARTT 498 Directed Studies in Studio Art (2-3) Prerequisite: permission of department. For advanced students. Repeatable if content differs. Formerly ARTS 498.

ASTR—Astronomy

ASTR 100 Introduction to Astronomy (3) Credit for ASTR 100 cannot be obtained after, or simultaneously with, receiving credit for any astronomy course numbered 150 or higher. An elementary course in descriptive astronomy, especially appropriate for non-science students. Sun, moon, planets, stars and nebulae, galaxies, evolution.

ASTR 101 General Astronomy (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Not open to students who have completed ASTR 100 or any astronomy course numbered higher than 100. Descriptive astronomy, appropriate for non-science majors. Sun, moon, planets, stars, nebulae, galaxies and evolution. Laboratory exercises include use of photographic material, computer simulations and observing sessions if weather permits.

ASTR 110 Astronomy Laboratory (1) Two hours of laboratory per week. Pre- or corequisite: ASTR 100. Exercises include use of photographs of moon, stars, nebulae and galaxies and spectra, experiments demonstrating scientific concepts used in astronomy. Daytime and nighttime observations if weather permits. Appropriate for non-science majors.

ASTR 111 Observational Astronomy Laboratory (1) Two hours of laboratory per week. Corequisite: ASTR 100. Single evening laboratory projects plus semester-long observing projects involving work both in and out of class. Lunar surface features, the night-time sky, changing positions of sun, moon, and planets; stellar spectra; observation of stars and nebulae in our galaxy.

ASTR 200 Introductory Astronomy and Astrophysics (3) Prerequisite: PHYS 161 or PHYS 171. Credit will be granted for only one of the following: ASTR 100 or ASTR 200. For science, mathematics, computer science and engineering majors only. Qualitative study of astronomy including exploration of the solar system, types of stars and galaxies observed. Mostly stresses analysis using algebra. Some use of calculus for celestial mechanics and other dynamical problems.

ASTR 288 Special Projects in Astronomy (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Independent study, short research projects, tutorial reading, and assisting with faculty research and teaching under special supervision.

ASTR 300 Stars and Stellar Systems (3) Prerequisite: ASTR 100 and completion of University Studies requirement in the natural sciences or permission of department. Designed primarily for non-physical-science majors. Study of stars-types, properties, evolution, and distribution in space; supernovae, pulsars, and black holes.

ASTR 310 Optical Astronomy Techniques (3) Three hours of lecture and one hour of laboratory per week. Prerequisites: (PHYS 273 and PHYS 276) or (PHYS 263 and PHYS 263A) or permission of department. For ASTR majors only. Introduction to current optical observational techniques, with brief coverage of infrared, ultraviolet and x-ray techniques. Statistics, spherical trigonometry time, catalogs, geometrical and physical optics, telescopes, optical instruments. Effects of the atmosphere. Practical work at the observatory using a CCD camera. Some night-time observing sessions.

ASTR 315 Navigation (3) Prerequisite: plane trigonometry. Theory and practice of navigation without landmarks, with emphasis on celestial navigation and some discussion of electronic navigation. Spherical trigonometry as necessary. Extensive practical work at times to be arranged.

ASTR 330 Solar-System Astronomy (3) Prerequisite: ASTR 100 and completion of University Studies requirement in the natural science or permission of department. Designed primarily for non-physical-science majors. The structure of planets and of their atmospheres, the nature of comets, asteroids, and satellites. Comparison of various theories for the origin of the solar system. Emphasis on a description of recent data and interpretation.

ASTR 340 Galaxies and the Universe (3) Prerequisite: ASTR 100 and completion of University Studies requirement in the natural science or permission of department. Designed primarily for non-physical science majors. A study of galaxies including our own galaxy, radio galaxies, and quasars. Measurement of distances, recession of galaxies, the microwave background and its relation to cosmology.

ASTR 350 Astronomy and Astrophysics (4) Prerequisites: ASTR 200 and (PHYS 272 or PHYS 262 or PHYS 142) or permission of department. Corequisite: PHYS 293 or PHYS 263. Topics in astronomy with emphasis on physical concepts. Stellar spectra, stellar evolution and collapsed objects, ionized nebulae, molecular clouds and star formation, stellar dynamics, cosmology.

ASTR 380 Life in the Universe (3) Prerequisite: ASTR 100 and completion of University Studies requirement in the natural science or permission of department. Designed primarily for non-physical science majors. Study of the astronomical perspective on the conditions for the origin and existence of life. Communication with extraterrestrial life.

ASTR 398 Special Topics in Astronomy (3) Prerequisite: junior standing or permission of department. Repeatable to 6 credits if content differs. This course is designed primarily for students not majoring in astronomy and is suitable for nonscience students. It will concentrate study in some limited field in astronomy which will vary from semester to semester. Possible subjects for study are the solar system, extragalactic astronomy and cosmology, the inconstant universe.

ASTR 399 Honors Seminar (1-16) Enrollment is limited to students admitted to the honors program in astronomy. Credit according to work done.

ASTR 400 Stellar Astrophysics (3) Prerequisite: ASTR 350. Corequisite: PHYS 420 or PHYS 421. Radiation processes in stars and interstellar space, stellar atmospheres, stellar structure and evolution.

ASTR 410 Radio Astronomy Techniques (3) Three hours of lecture and one hour of laboratory per week. Prerequisites: (PHYS 273 and PHYS 276) or (PHYS 263 and PHYS 263A) or permission of department. Introduction to current observational techniques in radio astronomy. The radio sky, coordinates and catalogs, antenna theory, Fourier transforms, interferometry and arrays, aperture synthesis, radio detectors. Practical work at observatory with a two-element interferometer.

ASTR 420 Introduction to Galactic Research (3) Prerequisite: PHYS 272 and ASTR 350 or equivalent or permission of department. Methods of galactic research, stellar motions, clusters of stars, evolution of the galaxy, study of our own and nearby galaxies.

ASTR 430 The Solar System (3) Prerequisite: MATH 246 and either PHYS 263 or PHYS 273, or permission of department. The structure of planetary atmospheres, radiative transfer in planetary atmospheres, remote sensing of planetary surfaces, interior structure of planets. Structure of comets. Brief discussions of asteroids, satellite systems, and solar system evolution. Intended for students majoring in any of the physical sciences.

ASTR 440 Introduction to Extra-Galactic Astronomy (3) Prerequisite: PHYS 272 and ASTR 350 or equivalent, or permission of department. Properties of normal and peculiar galaxies, including radio galaxies and quasars; expansion of the universe and cosmology.

ASTR 450 Celestial Mechanics (3) Prerequisite: PHYS 410 or permission of department. Celestial mechanics, orbit theory, equations of motion.

ASTR 498 Special Problems in Astronomy (1-6) Prerequisite: major in physics or astronomy or permission of department. Research or special study. Credit according to work done.

BCHM—Biochemistry

BCHM 261 Elements of Biochemistry (3) Prerequisite: CHEM 104 or CHEM 233 or CHEM 235. Not open to students who have completed BCHM 461. For undergraduate students who desire a one-semester biochemistry course rather than a two-semester sequence. Basic chemistry and metabolism of most molecules of biological importance.

BCHM 361 Origins of Biochemistry (3) Prerequisite: any distributive studies course in chemistry or any of the biological sciences. The development of our understanding of life processes. Emphasis on a consideration of ideas and findings that have led to diseases, hormonal mechanisms, photosynthesis and genetic engineering. Intended for non-science majors.

BCHM 399 Undergraduate Research in Biochemistry (1-3) Prerequisite: permission of department. Junior standing. Repeatable to 6 credits if content differs. Basic biochemical research conducted under the supervision of a faculty member.

BCHM 461 Biochemistry I (3) Prerequisite: CHEM 243 or CHEM 245. A comprehensive introduction to general biochemistry. The chemistry and metabolism of carbohydrates, lipids, nucleic acids, and proteins.

BCHM 462 Biochemistry II (3) Prerequisite: BCHM 461. A continuation of BCHM 461.

BCHM 464 Biochemistry Laboratory (2) Six hours of laboratory per week. Corequisite: BCHM 462.

BCHM 465 Biochemistry III (3) Prerequisite: BCHM 462. An advanced course in biochemistry.

BIOL—Biology

BIOL 101 Concepts of Biology (3) An introductory lecture course for the non-science major emphasizing the fundamental processes and interdependence of living organisms and the biological implications associated with human influence in the biological world. This course will not count toward graduation requirements for any student in the College of Life Sciences or the College of Agriculture.

BIOL 102 Laboratory in Biology (1) Three hours of laboratory per week. Pre- or corequisite: BIOL 101. A course designed for non-science students to illustrate the concepts underlying the organization and interrelationships of living organisms. This course will not count toward graduation requirements for any student in the College of Life Sciences or the College of Agriculture.

BIOL 105 Principles of Biology I (4) Three hours of lecture and three hours of laboratory per week. For science majors. Credit will be granted for only one of the following: BIOL 101, BOTN 101, ZOOL 101, BIOL 105. Basic principles of biology with special emphasis on cellular and molecular biology.

BIOL 106 Principles of Biology II (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: BIOL 105. For science majors. Basic principles of biology with special emphasis on organismic, ecological and evolutionary biology.

BIOL 124 Cosmic Evolution (3) Appropriate for non-science students. The current scientific thinking on the sequence of events from the origin of the universe to the appearance of humans. Emphasis on chemical and biological evolution.

BIOL 222 Principles of Genetics (4) Three hours of lecture and two hours of discussion/recitation per week. Prerequisites: BIOL 105; and CHEM 103. Corequisite: CHEM 113 or CHEM 104. Credit will be granted for only one of the following: ZOOL 213, HORT 274, or ANSC 201. Principles and mechanisms of heredity and gene expression. Considers plant, animal, and microbial organisms.

BIOL 398 Honors Research Problems in Biology (1-3) Prerequisite: Participation in the General Honors Program and/or the General Biological Sciences Honors Program. Repeatable to 6 credits. Research in biology under the direction and close supervision of a member of the faculty.

BIOL 399 Honors Seminar in Biology (1) Prerequisite: Participation in the General Honors Program and/or the General Biological Science Honors Program, and previous or concurrent enrollment in BIOL 398. Repeatable to 2 credits. Discussion and presentation of special topics, current literature, problems and progress in all areas of biological research.

BIOL 489 Topics in Biology for Secondary and Middle School Teachers (1-8) Prerequisites: Teacher certification, at least two years of high school and/or middle school science teaching experience and permission of department. Repeatable to 12 credits if content differs. An examination of selected topics in the biological sciences conducted through lecture/discussion, laboratory experimentation, and field research.

BIOL 495 Global Greenhouse Effect (3) Two hours of lecture and two hours of discussion/recitation per week. Prerequisites: BIOL 105; and BIOL 106. For students majoring in the College of Life Sciences, College of Agriculture and College of Education only. 90 semester hours. Senior standing. An interdisciplinary investigation of global greenhouse warming - its causes, probable consequences, and ways to deal with it in the next 100 years.

BIOM — Biometrics

BIOM 301 Introduction to Biometrics (3) Two hours of lecture and one hour of discussion/recitation per week. Prerequisite: MATH 115. Descriptive statistics, introduction to probability, sampling, confidence interval estimation, hypothesis testing, simple regression and correlation. Emphasis on simple applications of statistical techniques and interpretation of statistical results.

BIOM 401 Biostatistics I (4) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: BIOM 301. Descriptive statistics, probability models useful in biology, expectations, hypothesis testing, goodness of fit tests, central limit theorem, point and interval estimates, analysis of variance, regression, correlation, sampling, rank tests. Emphasis on the uses and the limitations of these methods in biology.

BIOM 405 Computer Applications in Biometrics (1) Two hours of laboratory per week. Corequisite: BIOM 401. An introduction to computer usage in statistical analyses. Topics include file manipulation, formatting data, transformations, descriptive statistics, graphical displays of data, and several introductory inferential statistical procedures.

BMGT—Business and Management

BMGT 110 Introduction to Business and Management (3) Not open to BMGT students who have completed 56 or more credit hours. All others may take it anytime. A survey of the field of business, including its environment, organization, overall and functional management, and current issues and developments.

BMGT 220 Principles of Accounting I (3) Sophomore standing. Basic theory and techniques of contemporary financial accounting. Includes the accounting cycle and the preparation of financial statements for single owner and partnership forms of business organizations operating as service companies or merchandisers.

BMGT 221 Principles of Accounting II (3) Prerequisite: BMGT 220. Basic theory and techniques of accounting for managerial decision making. Involves the introduction of the corporation and manufacturing operations. Includes cost-volume-profit analysis and capital budgeting. Introduces the topics of income taxation and international accounting.

BMGT 230 Business Statistics (3) Prerequisite: MATH 220. Not open to students who have completed BMGT 231, ENEE 324, or STAT 400. Credit will be granted for only one of the following: AREC 484, BIOM 301, BMGT 230, CNEC 400, ECON 321, EDMS 451, GEOG 305, GVPT 422, PSYC 200, SOCY 201, URSP 350, or TEXT 400. Introductory course in probabilistic and statistical concepts including descriptive statistics, set-theoretic development of probability, the properties of discrete and continuous random variables, sampling theory, estimation, hypothesis testing, regression, decision theory and the application of these concepts to problem solving in business and management. This course does not meet requirements for management science and statistics majors.

BMGT 231 Statistical Models For Business (3) Prerequisite: MATH 141 or permission of department. For management science and statistics majors. Credit will be granted for only one of the following: BMGT 231, ENEE 324, or STAT 400. An introductory course in statistical concepts including probability from a naive set theory approach, random variables and their properties, and the probability distributions of selected discrete and continuous random variables. The concepts of sampling, sampling distributions, and the application of these concepts to estimation and hypothesis testing are included as are brief surveys of the regression and anova models.

BMGT 301 Introduction to Management Information Systems (3) Three hours of lecture and one hour of laboratory per week. Prerequisite: BMGT 230 or BMGT 231. Management information systems for business majors. Basic concepts in the principles of computer systems and their use in a business organization in support of business functions in a microcomputer environment.

BMGT 302 Programming for Business Information Systems (3) Three hours of lecture and one hour of laboratory per week. Prerequisite: BMGT 301. COBOL programming course for decision and information science majors. Concepts in structured programming, data structures, file structures and algorithm development.

BMGT 310 Intermediate Accounting I (3) Prerequisite: BMGT 221. Comprehensive analysis of financial accounting topics related to financial statement preparation and external reporting.

BMGT 311 Intermediate Accounting II (3) Prerequisite: BMGT 310. Continuation of BMGT 310.

BMGT 321 Cost Accounting (3) Prerequisite: BMGT 221. A study of the basic concepts of product costing and cost analysis for management planning and control. Emphasis is placed on the role of the accountant in organizational management, analysis of cost behavior, standard cost, budgeting, responsibility accounting and relevant costs for decision making.

BMGT 323 Income Tax Accounting (3) Prerequisite: BMGT 221. Introduction to federal income taxation of individuals. Examination of tax laws by use of illustrative examples and problems.

BMGT 326 Accounting Systems (3) Prerequisites: BMGT 301, and BMGT 321. A study of the control aspects of accounting systems. Topics include: standard setting, administrative, operational, and security controls; cost effectiveness of systems; audit implications of a computer-based information environment.

BMGT 332 Operations Research For Management Decisions (3) Prerequisite: BMGT 230. Surveys the philosophy, techniques, and applications of operations research to managerial decision making. The course is designed primarily for students not majoring in management science or statistics. Techniques covered include linear programming, transportation and assignment models, Markov processes, inventory and queueing models. Emphasis is placed on formulating and solving decision problems in the functional areas of management.

BMGT 340 Business Finance (3) Prerequisites: BMGT 221; and (BMGT 230 or BMGT 231). The principles and practices involved in the organization, financing, and rehabilitation of business enterprises; the various types of securities and their use in raising funds, apportioning income, risk, and control; intercorporate relations; and new developments. Emphasis on solution of problems of financial policy faced by management.

BMGT 343 Investments (3) Prerequisite: BMGT 340. An introduction to financial investments. Topics include securities and securities markets; investment risks, returns, and constraints, portfolio policies; and institutional investment policies.

BMGT 350 Marketing Principles and Organization (3) Prerequisite: ECON 203; or ECON 205. An introductory course in the field of marketing. Its purpose is to give a general understanding and appreciation of the forces operating, institutions employed, and methods followed in marketing agricultural products, natural products, services and manufactured goods.

BMGT 353 Retail Management (3) Prerequisites: BMGT 220; and BMGT 350. Retail store organization, location, layout and store policy; pricing policies, price lines, brands, credit policies, records as a guide to buying, purchasing methods; supervision of selling; training and supervision of retail sales force; and administrative problems.

BMGT 354 Promotion Management (3) Prerequisite: BMGT 350. The use of advertising, personal selling, sales promotions, and other methods in marketing programs. Case studies in the use and coordination of demand stimulation methods, analysis and planning. Research, testing and statistical control of promotional activities.

BMGT 360 Human Resource Management (3) The basic course in human resource management includes manpower planning, recruitment, selection, development, compensation, and appraisal of employees. Explores the impact of scientific management and unionism on these functions.

BMGT 362 Labor Relations (3) A study of the development and methods of organized groups in industry with reference to the settlement of labor disputes. An economic and legal analysis of labor union and employer association activities, arbitration, mediation, and conciliation, collective bargaining, trade agreements, strikes, boycotts, lockouts, company unions, employee representation, and injunctions.

BMGT 364 Management and Organization Theory (3) The development of management and organization theory, nature of the management process and function and its future development. The role of the manager as an organizer and director, the communication process, goals and responsibilities.

BMGT 370 Principles of Transportation (3) Prerequisite: ECON 203, or ECON 205. A general course covering the five fields of transportation, their development, service, and regulation.

BMGT 372 Traffic and Physical Distribution Management (3) Examines the management aspects of the business firm in moving their raw materials and finished goods through traffic, warehousing, industrial packaging, materials handling, and inventory. A systematic

examination of the trade-off possibilities and management alternatives to minimize cost of product flow and maximizing customer service is provided.

BMGT 380 Business Law I (3) Legal aspects of business relationships. Examination of torts and business crimes, contracts and agency. The law of personal property and bailment relationships. Survey of public policy issues.

BMGT 381 Business Law II (3) Prerequisite: BMGT 380 or permission of department. The Uniform Commercial Code including sales, commercial paper, secured transactions, bulk sales and documents of title. The law of partnerships and corporations. Reorganization and liquidation under the bankruptcy laws. The law of real property, landlord and tenant relationships and decedents' estates.

BMGT 385 Production Management (3) Studies the operation of a manufacturing enterprise, concentrating on the economies of production. Introduces analytical method so that the broad problem areas of system design, operation and control can be based upon the analytical method.

BMGT 392 Introduction to International Business Management (3) Prerequisite: ECON 203, or ECON 205. A study of the domestic and foreign environmental factors affecting the international operations of U.S. business firms. The course also covers the administrative aspects of international marketing, finance and management.

BMGT 393 Real Estate Principles (3) Prerequisite: ECON 203; or ECON 205. The nature and uses of real estate, real estate as a business, basic principles, construction problems and home ownership, city planning, and public control and ownership of real estate.

BMGT 398 Individual Study in Business and Management (1-3) Prerequisite: permission of department. Repeatable to 6 credits.

BMGT 402 Database Systems (3) Prerequisite: BMGT 302. Introduction to basic concepts of database management systems. Relational databases, query languages and design will be covered. File-processing techniques are examined.

BMGT 403 Systems Analysis and Design (3) Prerequisite: BMGT 302. Techniques and tools applicable to the analysis and design of computer-based information systems. System life cycle, requirements analysis, logical design of data bases, performance evaluation. Emphasis on case studies. Project required that involves the design, analysis and implementation of an information system.

BMGT 404 Seminar in Decision Support Systems (3) Prerequisite: BMGT 302. Design of computer systems to solve business problems and to support decision making. Human and organizational factors are considered. Emphasis on case studies.

BMGT 405 Business Telecommunications (3) Prerequisite: BMGT 302. Concepts of business data communications and data processing. Application of these ideas in computer networks, including basic principles of telecommunications technology, computer network technology, data management in distributed database systems and management of the technical and functional components of telecommunications technology.

BMGT 407 Info Systems Projects (3) Prerequisite: 12 hours of information systems. For decision and information sciences majors only. Senior standing. Senior capstone course for the decision and information sciences major. Collected knowledge from the DIS courses and application to significant problems of size and complexity. State-of-the-art research ideas and current business and industrial practices in information systems.

BMGT 410 Fund Accounting (3) Prerequisite: BMGT 310. An introduction to the fund-based theory and practice of accounting as applied to governmental entities and not-for-profit associations.

BMGT 411 Ethics and Professionalism in Accounting (3) Prerequisite: BMGT 311. For accounting majors only. Senior standing. Analysis and discussion of issues relating to ethics and professionalism in accounting.

BMGT 417 Advanced Tax Accounting (3) Prerequisites: BMGT 311; and BMGT 323. Federal taxation of corporations, partnerships, fiduciaries, and gratuitous transfers. Tools and techniques of tax research for compliance and planning.

BMGT 420 Undergraduate Accounting Seminar (3) Prerequisite: senior standing as an accounting major or permission of department. Enrollment limited to upper one-third of senior class. Seminar coverage of outstanding current non-text literature, current problems and case studies in accounting.

BMGT 422 Auditing Theory and Practice (3) Prerequisite: BMGT 311. A study of the independent accountant's attest function, generally accepted auditing standards, compliance and substantive tests, and report forms and opinions.

BMGT 424 Advanced Accounting (3) Prerequisite: BMGT 311. Advanced accounting theory applied to specialized topics and current problems. Emphasis on consolidated statements and partnership accounting.

BMGT 426 Advanced Cost Accounting (3) Prerequisite: BMGT 321. Advanced cost accounting with emphasis on managerial aspects of internal record-keeping and control systems.

BMGT 427 Advanced Auditing Theory and Practice (3) Prerequisite: BMGT 422. An examination and in-depth study of special auditing topics such as statistical sampling, professional ethics, EDP auditing, legal liability, and SEC accounting.

BMGT 430 Linear Statistical Models in Business (3) Prerequisite: BMGT 230 or BMGT 231 or permission of department. Model building involving an intensive study of the general linear stochastic model and the applications of this model to business problems. The model is derived in matrix form and this form is used to analyze both the regression and ANOVA formulations of the general linear model.

BMGT 431 Design of Statistical Experiments in Business (3) Prerequisite: BMGT 230 or BMGT 231. Surveys ANOVA models, basic and advanced experimental design concepts. Non-parametric tests and correlations are emphasized. Applications of these techniques to business problems in primarily the marketing and behavioral sciences are stressed.

BMGT 434 Introduction to Optimization Theory (3) Prerequisite: MATH 220; or permission of department. Primarily for students majoring in management science and statistics. Linear programming, postoptimality analysis, network algorithms, dynamic programming, nonlinear programming and single variable minimization.

BMGT 435 Introduction to Applied Probability Models (3) Prerequisite: BMGT 231 or permission of department. Statistical models in management. Review of probability theory, Monte Carlo methods, discrete event simulation, Markov chains, queueing analysis, other topics depending upon time. Guass, a higher-level computer language, will be introduced in the class and the students will carry out various exercises using this language.

BMGT 440 Financial Management (3) Prerequisite: BMGT 340. Analysis and discussion of cases and readings relating to financial decisions of the firm. The application of finance concepts to the solution of financial problems is emphasized.

BMGT 443 Security Analysis and Valuation (3) Prerequisite: BMGT 343. Study and application of the concepts, methods, models, and empirical findings to the analysis, valuation, and selection of securities, especially common stock.

BMGT 444 Futures Contracts and Options (3) Prerequisite: BMGT 343. The institutional features and economic rationale underlying markets in futures and options. Hedging, speculation, structure of futures prices, interest rate futures, efficiency in futures markets, and stock and commodity options.

BMGT 445 Commercial Bank Management (3) Prerequisites: BMGT 340; and ECON 430. Analysis and discussion of cases and readings in commercial bank management. The loan function is emphasized; also the management of liquidity reserves, investments for income, and source of funds. Bank objectives, functions, policies, organization, structure, services, and regulation are considered.

BMGT 446 International Finance (3) Prerequisite: BMGT 340. Financial management from the perspective of the multinational corporation. Topics covered include the organization and functions of foreign exchange and international capital markets, international capital budgeting, financing foreign trade and designing a global financing strategy. Emphasis of the course is on how to manage exchange and political risks while maximizing benefits from global opportunity sets faced by the firm.

BMGT 451 Consumer Analysis (3) Prerequisite: BMGT 350. Recommended: PSYC 100; and PSYC 221. Not open to students who have completed CNEC 437. Credit will be granted for only one of the following: BMGT 451 or CNEC 437. American consumers in the marketing system. Underlying consumer behavior such as economic, social, psychological and cultural factors. Analysis of consumers in marketing situations - as a buyer and user of products and services - and in relation to the various individual social and marketing factors affecting their behavior. The influence of marketing communications is also considered.

BMGT 452 Marketing Research Methods (3) Prerequisites: BMGT 230, and BMGT 451. Formerly BMGT 450. Develops skills in the use of scientific methods in the acquisition, analysis and interpretation of marketing data. It covers the specialized fields of marketing research; the planning of survey projects, sample design, tabulation procedure and report preparation.

BMGT 453 Industrial Marketing (3) Prerequisites: BMGT 350 plus one other marketing course. The industrial and business sector of the marketing system is considered rather than the household or ultimate consumer sector. Industrial products range from raw materials and supplies to the major equipment in a plant, business office, or institution. Topics include product planning and introduction, market analysis and forecasting, channels, pricing, field sales force management, advertising, marketing cost analysis, and government relations. Particular attention is given to industrial, business and institutional buying policies and practice and to the analysis of buyer behavior.

BMGT 454 International Marketing (3) Prerequisites: BMGT 350 plus one other marketing course. Marketing functions from the international executive's viewpoint, including coverage of international marketing policies relating to product adaptation, data collection and analysis, channels of distribution, pricing, communications, and cost analysis. Consideration is given to the cultural, legal, financial, and organizational aspects of international marketing.

BMGT 455 Sales Management (3) Prerequisite: BMGT 350. The role of the sales manager, both at headquarters and in the field, in the management of people, resources and marketing functions. An analysis of the problems involved in sales organization, forecasting, planning, communicating, evaluating and controlling. The application of quantitative techniques and pertinent behavioral science concepts in the management of the sales effort and sales force.

BMGT 456 Advertising (3) Prerequisite: BMGT 350. The role of advertising in the American economy; the impact of advertising on our economic and social life, the methods and techniques currently applied by advertising practitioners; the role of the newspaper, magazine, and other media in the development of an advertising campaign, modern research methods to improve the effectiveness of advertising and the organization of the advertising business.

BMGT 457 Marketing Policies and Strategies (3) Prerequisite: BMGT 452. Integrative decision making in marketing. Emphasis on consumer and market analysis and the appropriate decision models. Case studies are included.

BMGT 460 Human Resource Management: Analysis and Problems (3) Prerequisite: BMGT 360. Recommended: BMGT 230. Research findings, special readings, case analysis, simulation, and field investigations are used to develop a better understanding of personnel problems, alternative solutions and their practical ramifications.

BMGT 461 Entrepreneurship (3) Process of creating new ventures, including evaluating the entrepreneurial team, the opportunity and the financing requirements. Skills, concepts, mental attitudes and knowledge relevant for starting a new business.

BMGT 462 Labor Legislation (3) Case method analysis of the modern law of industrial relations. Cases include the decisions of administrative agencies, courts and arbitration tribunals.

BMGT 464 Organizational Behavior (3) Prerequisite: BMGT 364. An examination of research and theory

concerning the forces which contribute to the behavior of organizational members. Topics covered include: work group behavior, supervisory behavior, intergroup relations, employee goals and attitudes, communication problems, organizational change, and organizational goals and design.

BMGT 467 Undergraduate Seminar in Human Resource Management (3) Prerequisite: permission of department. This course is open only to the top one-third of undergraduate majors in human resource management and is offered during the fall semester of each year. Guest lecturers make periodic presentations.

BMGT 470 Carrier Management (3) Prerequisites: BMGT 370; and BMGT 372. Integration of the functions available to managers in transportation companies including planning, directing and implementation of policies. Emphasis on the changing environment in which managers of transportation carriers function.

BMGT 473 Advanced Transportation Problems (3) Prerequisite: BMGT 370. A critical examination of current government transportation policy and proposed solutions. Urban and intercity managerial transport problems are also considered.

BMGT 474 Urban Transport and Urban Development (3) Prerequisite: ECON 203, or ECON 205. An analysis of the role of urban transportation in present and future urban development. The interaction of transport pricing and service, urban planning, institutional restraints, and public land uses is studied.

BMGT 475 Advanced Logistics Management (3) Prerequisites: BMGT 370; and BMGT 372. Application of the concepts of BMGT 372 to problem solving and special projects in logistics management. Case analysis is stressed.

BMGT 476 Applied Computer Models in Transportation and Logistics (3) Prerequisites: BMGT 301 and BMGT 370 and BMGT 372. Applications of the expanding base of computer software in the transportation and logistics fields with particular relevance to carrier and shipper issues in a deregulated environment.

BMGT 477 International Transportation and Logistics (3) Prerequisites: BMGT 370; and BMGT 372. Analysis of the structure, service, pricing and competitive relationship of U.S. international carriers and transport intermediaries. Examination of the role of foreign competitors, managerial and economic factors and politically imposed restrictions. Business and public policy implications of transportation in developing countries and their interface with international trade and development.

BMGT 480 Legal Environment of Business (3) Junior standing. Principal ideas in law stressing those relevant for the modern business executive with focus on legal reasoning as it has evolved in this country. Leading antitrust cases illustrating the reasoning process as well as the interplay of business, philosophy, and the various conceptions of the nature of law which give direction to the process. Examination of contemporary legal problems and proposed solutions, especially those most likely to affect the business community.

BMGT 481 Public Utilities (3) Prerequisite: ECON 203; or ECON 205. Using the regulated industries as specific examples, attention is focused on broad and general problems in such diverse fields as constitutional law, administrative law, public administration, government control of business, advanced economic theory, accounting, valuation and depreciation, taxation, finance, engineering, and management.

BMGT 482 Business and Government (3) Prerequisite: ECON 203; or ECON 205. A study of the role of government in modern economic life. Social control of business as a remedy for the abuses of business enterprise arising from the decline of competition. Criteria of limitations on government regulation of private enterprise.

BMGT 485 Advanced Production Management (3) Prerequisite: BMGT 385. A study of typical problems encountered by the factory manager. The objective is to develop the ability to analyze and solve problems in management control of production and in the formulation of production policies. Among the topics covered are plant location, production planning and control, methods analysis, and time study.

BMGT 486 Total Quality Management (3) Prerequisite: BMGT 230 or equivalent. Total Quality Management and the synergy required between functions to obtain the customer's quality demands. Statistical tools which are mandatory in any successful quality effort.

BMGT 493 Honors Study (3) Prerequisite: permission of department. First semester of the senior year. The course is designed for honors students who have elected to conduct intensive study (independent or group). The student will work under the direct guidance of a faculty advisor and the Assistant Dean of Undergraduate Studies. They shall determine that the area of study is of a scope and intensity deserving of a candidate's attention. Formal written and/or oral reports on the study may be required by the faculty advisor.

BMGT 494 Honors Study (3) Prerequisite: BMGT 493, and continued candidacy for honors in Business and Management. Second semester of the senior year. The student shall continue and complete the research initiated in BMGT 493, additional reports may be required at the discretion of the faculty advisor and Assistant Dean of Undergraduate Studies.

BMGT 495 Business Policies (3) Prerequisites: BMGT 340; and BMGT 350; and BMGT 364. A case study course where students apply what they have learned of general management principles and their specialized functional applications to the overall management function in the enterprise.

BMGT 496 Business and Society (3) Prerequisite: one course in BMGT; or permission of department. Normative role of business in society; consideration of the sometimes conflicting interests and claims on the firm and its objectives.

BMGT 498 Special Topics in Business and Management (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Special topics in business and management designed to meet the changing needs and interests of students and faculty.

BOTN—Botany

BOTN 103 Human Aspects of Plant Biology (3) An introduction to botany for non-science students: nature of botany; form and process in plants; plants in the environment; plants used by humans; plants, history and culture; exploring for plants. This course will not count towards graduation requirements for any student in the College of Life Sciences or the College of Agriculture.

BOTN 104 Plant Biology for Non-Science Students (3) For non-science majors only. Not open to students who have completed BIOL 105. Formerly BOTN 100. A basic course in plant biology specifically designed for the non-science student. Emphasis is placed on an evolutionary and ecological approach to studying fundamental concepts and processes of plants, their place in the biosphere, the importance of plants to man, and the manner in which humans impact on plants and their environment. This course will not count toward graduation requirements for any student in the College of Life Sciences or the College of Agriculture.

BOTN 105 Laboratory in Plant Biology (1) Three hours of laboratory per week. Pre- or corequisite: BOTN 104. For non-science majors only. Laboratory investigations for the non-science student into the processes and functions of plants, their evolution, adaptations and ecological roles. This course will not count toward graduation requirements for any student in the College of Life Sciences or the College of Agriculture.

BOTN 207 Plant Diversity (4) Prerequisite: BIOL 105 or HORT 100. Credit will be granted for only one of the following: BOTN 207 or BOTN 202. Formerly BOTN 202. The levels of plant evolution, i.e. algae, fungi, bryophytes, pteridophytes, and seed plants, with particular attention to the specialized structural adaptations necessary to carry out unique plant functions.

BOTN 211 Ecology and Mankind (3) Basic ecological principles as they relate to the ecological dilemmas of overpopulation, pollution, increasing consumption of natural resources, and deteriorating land use ethics facing mankind today.

BOTN 212 Plant Taxonomy (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: BIOL 105 or permission of department. An introductory study of plant identification, naming, and classification. Laboratory emphasis on the collection and identification of local vascular plants.

BOTN 315 Plants of Economic Importance (3) Two lectures and one laboratory period per week. Recommended: (BOTN 104 or BIOL 105), or permission of department. Botanical characteristics of plants and plant products economically important to human societies, origin, cultivation, and uses of domesticated plants in different cultures.

BOTN 321 Introductory Plant Pathology (4) Two hours of lecture and four hours of laboratory per week. Prerequisites: BIOL 105 and BIOL 106. Credit will be granted for only one of the following: BOTN 221 or BOTN 321. Formerly BOTN 221. An introduction to the causal agents, nature and management of plant diseases.

BOTN 379 Honors Research Problems in Botany (1-3) Prerequisite: BOTN 378 and twenty credits in botany courses. Open only to honors students in botany. Repeatable to 6 credits. Research in botany under the direction and close supervision of a member of the faculty.

BOTN 398 Seminar (1) Prerequisite: major in botany; with permission of department, major in biological science. Repeatable to 2 credits. Discussion and reading on special topics, current literature, or problems and progress in all phases of botany.

BOTN 399 Research Problems in Botany (1-3) Prerequisite: twenty hours of botany courses and permission of department. Repeatable to 6 credits. Research and/or integrated reading in botany under the direction and close supervision of a member of the faculty.

BOTN 401 Origins of Modern Botany (1) Prerequisite: 20 credit hours in biological science including BIOL 105 or permission of department. History of botany as a science, from ancient Greece through the 18th century; emphasis on botany as an intellectual and cultural pursuit.

BOTN 403 Medicinal and Poisonous Plants (2) Prerequisite: BIOL 105 and CHEM 104. A study of plants important to humans that have medicinal or poisonous properties. Emphasis on plant source, plant description, the active agent and its beneficial or detrimental physiological action and effects.

BOTN 405 Advanced Plant Taxonomy (3) Two lectures and one laboratory per week. Prerequisite: BOTN 202; and BOTN 212, or equivalent. A review of the history and principles of plant taxonomy with emphasis on monographic and floristic research. A detailed laboratory review of the families of flowering plants.

BOTN 407 Teaching Methods in Botany (2) Four two-hour laboratory demonstration periods per week, for eight weeks. Prerequisite: BIOL 105 or permission of department. A study of the biological principles of common plants, and demonstrations, projects, and visual aids suitable for teaching in primary and secondary schools.

BOTN 411 Evolutionary Biology of Plants (3) Prerequisite: BOTN 202 or equivalent. Evolution of basic plant biological systems, major structural adaptations of plant organs, and origins of vascular plant groups. The pace, patterns and mechanisms of evolution, discussed within a genetic, systematic and paleontological framework.

BOTN 413 Plant Geography (2) Prerequisite: BIOL 105. A study of plant distribution throughout the world and the factors generally associated with such distribution.

BOTN 414 Plant Genetics (3) Prerequisite: BIOL 105. Credit will be granted for only one of the following: ZOOL 213, ANSC 201, BOTN 414, HORT 274. The basic principles of plant genetics are presented, the mechanics of transmission of the hereditary factors in relation to the life cycle of seed plants, the genetics of specialized organs and tissues, spontaneous and induced mutations of basic and economic significance gene action, genetic maps, the fundamentals of polyploidy, and genetics in relation to methods of plant breeding.

BOTN 416 Plant Structure (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: BIOL 105. A survey of the basic structural features of vascular plants, including subcellular organelles, cells, tissues, and organs. Emphasis on structural phenomena as they relate to physiological processes of agricultural importance.

BOTN 420 Plant Cell Biology (3) Prerequisite: organic chemistry and two years of botany. A study of eucaryotic cell organization, integrating structure with function and concentrating on subcellular organelles and the mechanisms of physiological regulation at the cellular level.

BOTN 424 Pathogenic Bacteria and Fungi of Plants (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: BOTN 321 or permission of department. A survey of the diagnostic properties and biology of plant pathogenic bacteria and fungi.

BOTN 426 Mycology (4) Two hours of lecture and six hours of laboratory per week. Prerequisite: BIOL 105. An introductory course in the biology, morphology and taxonomy of the fungi.

BOTN 441 Plant Physiology (4) Two hours of lecture and four hours of laboratory per week. Prerequisites: BIOL 105 and CHEM 103. A survey of the general physiological activities of plants.

BOTN 456 Principles of Microscopy (2) Prerequisite: BOTN 420 or equivalent. An introduction to optical principles that underlie light and electron microscopic image formation. Brightfield, darkfield, phase contrast, differential interference contrast, fluorescence and polarized light microscopy. Comparison of light and electron microscopy. The application of these techniques to problems in biological research.

BOTN 462 Plant Ecology (2) Prerequisite: BIOL 105. The dynamics of populations as affected by environmental factors with special emphasis on the structure and composition of natural plant communities, both terrestial and aquatic.

BOTN 463 Ecology of Marsh and Dune Vegetation (2) Prerequisite: BIOL 105. An examination of the biology of higher plants in dune and marsh ecosystems.

BOTN 464 Plant Ecology Laboratory (2) Three hours of laboratory per week. Pre- or corequisite: BOTN 462 or equivalent. Two or three field trips per semester. The application of field and experimental methods to the qualitative and quantitative study of vegetation and ecosystems.

BOTN 476 Biology of Phytoplankton (4) Two hours of lecture and four hours of laboratory per week. Prerequisites: BIOL 105 and an introductory course in ecology (ZOOL 212 or equivalent). Collection, identification, culture, physical and chemical requirements, life cycles, community structure, specialized environments, blooms of phytoplankton.

BOTN 483 Plant Biotechnology (2) Prerequisite: (BOTN 414 or ZOOL 213 or MICB 380 or ANSC 201 or HORT 274) and BOTN 441. Theoretical and applied consideration of current technology for crop improvement, including manipulation of whole plants, tissues, and genes.

BOTN 484 Plant Biochemistry (3) Prerequisite: BOTN 441; and CHEM 233. Biochemical processes characteristic of plants, including photosynthesis, nitrogen fixation and biosynthesis of plant macromolecules.

BSOS —Behavioral and Social Sciences

BSOS 200 Introduction to Applied Behavioral and Social Sciences (3) Two hours of lecture and two hours of laboratory per week. The generation and utilization of behavioral-social science knowledge. The theoretical approaches of the behavioral-social disciplines and the application of their methods of research. Differences and similarities among the disciplines and their interrelationships in the solution of problems.

BSOS 300 Ethical Issues in Social Science Research (3) Prerequisite: BSOS 200 or three credits in one of the social sciences. Moral and ethical issues in social science research and its uses. Case studies and discussions to develop both an awareness of issues and a level of sophistication to deal with the ethical dilemmas implicit in research on people.

BSOS 308 Contemporary Issues: Interdisciplinary Approaches (3) Repeatable to 6 credits if content differs. An interdisciplinary analysis of current public policy issue of international, national and community import. Senior standing recommended.

BSOS 346 Internship in Political Institutions: State and Local Government (3-6) Prerequisite: permission of department. This course offers students supervised placements in state and local governmental agencies. Attendance at the seminar and discussion section is required.

BSOS 356 Internship in Political Institutions: Federal and International (3-6) Prerequisite: permission of department. This course offers students supervised placements in national and international governmental agencies. Attendance at the seminar and discussion section is required.

BSOS 359 Contemporary Issues in Political Leadership and Participation (3) Prerequisite: permission of department. Repeatable to 9 credits if content differs. Special topics in political leadership and participation.

BSOS 366 Internship in Community Service Organizations (3-6) Prerequisite: permission of department. This course offers students supervised placements in non-profit community organizations. Attendance at the seminar and discussion section is required.

BSOS 396 Fellowship Program in Political Leadership (3-6) Prerequisite: permission of department and acceptance of full-time fellowship program. Corequisite: BSOS 346, BSOS 356 or BSOS 366. Individual instruction course.

BSOS 399 Directed Study in Behavioral and Social Sciences (1-6) Prerequisite: permission of department. Guidance for the advanced student capable of interdisciplinary study on special projects under the supervision of the Assistant Dean for Student Affairs.

CCJS—Criminology and Criminal Justice

CCJS 100 Introduction to Criminal Justice (3) Formerly CJUS 100. Introduction to the administration of criminal justice in a democratic society with emphasis on the theoretical and historical development of law enforcement. The principles of organization and administration for law enforcement; functions and specific activities; planning and research; public relations; personnel and training; inspection and control; direction; policy formulation.

CCJS 105 Introduction to Criminology (3) Formerly CRIM 220. Criminal behavior and the methods of its study; causation; typologies of criminal acts and offenders; punishment, correction and incapacitation; prevention of crime.

CCJS 230 Criminal Law in Action (3) Formerly CJUS 230. Law as one of the methods of social control. Criminal law: its nature, sources and types; theories and historical developments. Behavioral and legal aspects of criminal acts. Classification and analysis of selected criminal offenses.

CCJS 234 Law of Criminal Investigation (3) Prerequisite: CCJS 230. Formerly CJUS 234. General principles and theories of criminal procedure. Due process. Arrest, search and seizure. Recent developments. Study and evaluation of evidence and proof.

CCJS 300 Criminological and Criminal Justice Research Methods (3) Prerequisites: CCJS 100 and CCJS 105; and one of the following: SOCY 201, PSYC 200, ECON 321, BMGT 230, EDMS 451, or GVPT 422. Formerly CJUS 300. Introduction to the formulation of research questions covering crime and justice, research designs, data collection, and interpretation and reporting in criminological and justice-system settings.

CCJS 320 Introduction to Criminalistics (3) Prerequisite: CCJS 234. Formerly CJUS 320. An introduction to modern methods used in the detection, investigation and solution of crimes. Practical analysis of evidence in a criminal investigation laboratory, including photography, fingerprints and other impressions, ballistics, glass, hair, handwriting and document examination, drug analysis, and lie detection.

CCJS 330 Contemporary Criminological Issues (3) Prerequisite: CCJS 105. Formerly CRIM 330. Career criminals, prison overcrowding, prediction, ecological studies of crime, family and delinquency and similar criminological problems. Enforcement procedures for civil law and similar legal problems. Admissibility of evidence. Representation. Indigent's right to counsel.

CCJS 331 Contemporary Legal Policy Issues (3) Prerequisites: CCJS 230; and CCJS 234 or equivalent. Formerly CJUS 330. In-depth examination of selected topics. Criminal responsibility. Socio-legal policy alternatives with regard to deviance. Law enforcement procedures for civil law and similar legal problems. Admissibility of evidence. Representation. Indigent's right to counsel.

CCJS 340 Concepts of Law Enforcement Administration (3) Prerequisite: CCJS 100 or equivalent. Formerly CJUS 340. An introduction to concepts of organization and management as these relate to law enforcement. Principles of structure, process, policy and procedure, communication and authority, division of work and organizational controls. Human element in the organization. Informal interaction and bureaucracy.

CCJS 350 Juvenile Delinquency (3) Prerequisite: CCJS 105. Formerly CRIM 450. Juvenile delinquency in relation to the general problem of crime; analysis of factors underlying juvenile delinquency; treatment and prevention. organization and social responsibility of law enforcement.

CCJS 352 Drugs and Crime (3) Prerequisite: CCJS 100. Formerly CJUS 352. An analysis of the role of criminal justice in the control of drug use and abuse.

CCJS 357 Industrial and Retail Security Administration (3) Prerequisite: CCJS 100 or permission of department. Formerly CJUS 360. The origins of contemporary private security systems. Organization and management of industrial and retail protective units.

CCJS 359 Field Training in Criminology and Corrections (1-6) Prerequisite: six credits in criminology and permission of department. Repeatable to 6 credits. Formerly CRIM 359. Supervised field training in public or private social agencies. Group meetings, individual conferences and written program reports.

CCJS 360 Victimology (3) Prerequisite: CCJS 105. Formerly CRIM 360. Overview of the history and theory of victimology. Analysis of victimization patterns with special emphasis on types of victims and crimes. The interaction between victims of crime and the criminal justice system with respect to the role of the victim and the services offered to the victim.

CCJS 388 Independent Reading Course in Criminology and Criminal Justice (3) Prerequisites: CCJS 100 and CCJS 105. For honor students only. Formerly CRIM 388. Designed for the needs of honor students in criminology and criminal justice.

CCJS 389 Independent Research in Criminology and Criminal Justice (3) Prerequisite: CCJS 105. For honor students only. Formerly CRIM 389. Designed for the needs of honor students in criminology and criminal justice.

CCJS 398 Law Enforcement Field Training (1-6) Prerequisite: 6 credits of CCJS; and permission of department. Repeatable to 6 credits. Formerly CJUS 398. Supervised, structured and focused field training in law enforcement agencies.

CCJS 399 Independent Study in Criminology and Criminal Justice (1-3) Prerequisites: 12 credits in criminology and criminal justice and permission of department. Repeatable to 6 credits. Formerly CRIM 399. Integrated reading or research under direction and supervision of a faculty member.

CCJS 400 Criminal Courts (3) Prerequisite: CCJS 100 or permission of department. Formerly CJUS 400. Criminal courts in the United States at all levels; judges, prosecutors, defenders, clerks, court administrators, and the nature of their jobs; problems facing courts and prosecutors today and problems of administration; reforms.

CCJS 432 Law of Corrections (3) Prerequisites: CCJS 230 or CCJS 234; and CCJS 105. Formerly CRIM 432. A review of the law of criminal corrections from sentencing to final release or release on parole. Probation, punishments, special treatments for special offenders, parole and pardon, and the prisoner's civil rights are also examined.

CCJS 444 Advanced Law Enforcement Administration (3) Prerequisite: CCJS 340 or permission of department. Formerly CJUS 444. The structuring of manpower, material, and systems to accomplish the major goals of social control. Personnel and systems management. Political controls and limitations on authority and jurisdiction.

CCJS 451 Crime and Delinquency Prevention (3) Prerequisite: CCJS 105 or CCJS 350 or permission of department. Formerly CRIM 451. Methods and programs in prevention of crime and delinquency.

CCJS 452 Treatment of Criminals and Delinquents (3) Prerequisite: CCJS 105 or CCJS 350 or permission of department. Formerly CRIM 452. Processes and methods used to modify criminal and delinquent behavior.

CCJS 453 White Collar and Organized Crime (3) Prerequisite: CCJS 105 or CCJS 350. Formerly CRIM 456. Definition, detection, prosecution, sentencing and impact of white collar and organized crime. Special consideration given to the role of federal law and enforcement practices.

CCJS 454 Contemporary Criminological Theory (3) Prerequisites: CCJS 105; and CCJS 350. Formerly CRIM 454. Brief historical overview of criminological theory up to the 50's. Deviance. Labeling. Typologies. Most recent research in criminalisticsubcultures and middle class delinquency. Recent proposals for <"decriminalization">.

CCJS 455 Dynamics of Planned Change in Criminal Justice I (3) Prerequisite: permission of department. Formerly CJUS 455. An examination of conceptual and practical issues related to planned change in criminal justice. Emphasis on the development of innovative ideas using a research and development approach to change, and drug abuse, and criminal behavior.

CCJS 456 Dynamics of Planned Change in Criminal Justice II (3) Prerequisite: CCJS 455 or permission of department. Formerly CJUS 456. An examination of conceptual and practical issues related to planned change in criminal justice. Emphasis on change strategies and tactics which are appropriate for criminal justice personnel in entry level positions.

CCJS 457 Comparative Criminology and Criminal Justice (3) Prerequisite: CCJS 105 or CCJS 350. Formerly CRIM 457. Comparison of law and criminal justice systems in different countries. Special emphasis on the methods of comparative legal analysis, international cooperation in criminal justice, and crime and development.

CCJS 461 Psychology of Criminal Behavior (3) Prerequisite: CCJS 105 or equivalent; and PSYC 330 or PSYC 353. Formerly CRIM 455. Biological, environmental, and personality factors which influence criminal behaviors. Biophysiology and crime, stress and crime, maladjustment patterns, psychoses, personality disorders, aggression and violent crime, sex-motivated crime and sexual deviations, alcohol and drug abuse, and criminal behavior.

CCJS 462 Special Problems in Security Administration (3) Prerequisite: CCJS 357. Formerly CJUS 462. An advanced course for students desiring to focus on specific concerns in the study of private security organizations; business intelligence and espionage; vulnerability and criticality analyses in physical security; transportation, banking, hospital and military security problems; uniformed security forces; national defense information; and others.

CCJS 498 Selected Topics in Criminology and Criminal Justice (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Formerly CRIM 498. Topics of special interest to advanced undergraduates in criminology and criminal justice. Offered in response to student request and faculty interest.

CHEM—Chemistry

CHEM 001 Introduction to College Chemistry (2) Two hours of lecture and one hour of laboratory per week. This course is recommended for students who do not qualify for MATH 110 or higher and who must take CHEM 103. Special fee. This course does not carry credit towards any degree at the University. An introduction to the study of matter.

CHEM 102 Chemistry of Our Environment (4) Three hours of lecture, three hours of laboratory, and one hour of discussion/recitation per week. Credit will be granted for only one of the following: CHEM 102, or CHEM 103, or CHEM 105, or CHEM 107, or CHEM 111, or CHEM 121. Basic chemical principles with applications in cosmochemistry, geochemistry, biochemistry and nuclear chemistry. Emphasis is on the development of our environment and on our effect upon it. This course does not fulfill most chemistry requirements of the professional colleges and schools.

CHEM 103 General Chemistry I (4) Three hours of lecture, three hours of laboratory, and one hour of discussion/recitation per week. Recommended: CHEM 001 or placement in MATH 115 or higher. Credit will be granted for only one of the following: CHEM 102, CHEM 103, CHEM 105, CHEM 107, CHEM 111, CHEM 143. The first semester of a chemistry sequence intended for students whose curricula require a year or more of chemistry. The nature and composition of matter, chemical calculations, elements and inorganic compounds.

CHEM 104 Fundamentals of Organic and Biochemistry (4) Three hours of lecture, three hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: CHEM 103 or CHEM 105. Credit will be granted for only one of the following: CHEM 104 or CHEM 233 (or CHEM 235). Intended for students whose curricula require one year of chemistry. Students requiring two or more years of chemistry should register for CHEM 233 or CHEM 235. The chemistry of carbon: aliphatic compounds, aromatic compounds, stereochemistry, halides, amines, and amides, acids, esters, carbohydrates, and natural products.

CHEM 109 College Chemistry Laboratory (1-2) Prerequisite: permission of department. Laboratory work as required for transfer students whose lower division work at other universities has not included laboratory work.

CHEM 113 General Chemistry II (4) Three hours of lecture, three hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: CHEM 103 or CHEM 105. Credit will be granted for only one of the following: CHEM 113 or CHEM 115. Kinetics; homogeneous, heterogenous, and ionic equilibria; oxidation-reduction; electrochemistry; chemistry of the elements.

CHEM 121 Chemistry in the Modern World (3) Three hours of lecture and one hour of discussion/recitation per week. Credit will be granted for only one of the following: CHEM 102, or CHEM 103, or CHEM 105, or CHEM 107, or CHEM 111, or CHEM 121. Basic chemical principles and terminology with applications to the chemistry of everyday life including food, metals, plastics and fibres. This course does not fulfill most chemistry requirements of the professional schools and colleges. When CHEM 121 and CHEM 122 are taken concurrently, together they fulfill the CORE laboratory science requirement.

CHEM 122 Laboratory Chemistry (1) Pre- or corequisite: CHEM 121. Credit will be granted for only one of the following: CHEM 102, or CHEM 103, or CHEM 105, or CHEM 111, or CHEM 122. Formerly CHEM 111. Includes experiments illustrating the chemical principles and chemical applications in the modern world presented in CHEM 121. When CHEM 122 and CHEM 121 are taken concurrently, together they fulfill the CORE laboratory science requirement.

CHEM 143 General and Analytical Chemistry I (5) Three hours of lecture, six hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: one year high school chemistry. For CHEM majors only. Credit will be granted for only one of the following: CHEM 103, CHEM 122, CHEM 102, CHEM 143. The first semester of a chemistry sequence for chemistry and biochemistry majors. Stoichiometry, molecular structure and the equilibrium of acids, bases and buffers. Lab topics will focus on inorganic chemistry and quantitative analysis.

CHEM 153 General and Analytical Chemistry II (5) Three hours of lecture, six hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: CHEM 143 with grade of C or better. For CHEM and BCHM majors only. Credit will be granted for only one of the following: CHEM 102, CHEM 122, CHEM 113. The second semester of a course sequence for chemistry and biochemistry majors. Kinetics, ionic equilibria, redox reactions, electrochemistry, descriptive inorganic chemistry. Labs focus on inorganic chemistry and quantitative analysis.

CHEM 227 Inorganic and Analytical Chemistry Lab (4) Two hours of lecture and six hours of laboratory per week. Prerequisite: CHEM 113. Laboratory in inorganic chemistry and quantitative analysis for chemistry and biochemistry majors who did NOT take CHEM 143 and CHEM 153.

CHEM 233 Organic Chemistry I (4) Three hours of lecture, three hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: CHEM 113 or CHEM 153. Credit will be granted for only one of the following: CHEM 104, CHEM 233, CHEM 255. The chemistry of carbon: aliphatic compounds, aromatic compounds, stereochemistry, arenes, halides, alcohols, esters, and spectroscopy.

CHEM 243 Organic Chemistry II (4) Three hours of lecture, three hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: CHEM 233. Credit will be granted for only one of the following: CHEM 243 or CHEM 245. A continuation of CHEM 233 with emphasis on molecular structure; substitution reactions: carbonium ions; aromaticity; synthetic processes; macro-molecules.

CHEM 287 Computer Programming for the Biological and Chemical Sciences (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: one year of college chemistry or biological science. Introduction to a structured programming language (PASCAL), with examples and applications chosen from the biological and chemical sciences.

CHEM 321 Quantitative Analysis (4) Two hours of lecture and six hours of laboratory per week. Prerequisite: CHEM 113 or CHEM 115. Volumetric, gravimetric, electrometric, and colorimetric methods in analytical inorganic chemistry.

CHEM 374 Technology, Energy and Risk (3) Prerequisite: completion of USP Distributive Studies Area B. Decision-making in a technological, democratic society. Current issues such as acid rain, nuclear power, synthetic organic chemicals.

CHEM 395 Professional Issues in Chemistry and Biochemistry (1) Junior standing. For CHEM and BCHM majors only. Seminar on professional issues. Professional responsibilities, ethics, interview techniques, career opportunities, graduate/professional school, race and gender issues.

CHEM 398 Special Projects (2) Honors projects for undergraduate students.

CHEM 399 Introduction to Chemical Research (1-3) Prerequisite: permission of department. Junior standing. Repeatable to 6 credits. Basic (chemical) research conducted under the supervision of a faculty member.

CHEM 401 Inorganic Chemistry (3) Prerequisite: CHEM 481.

CHEM 403 Radiochemistry (3) Prerequisite: one year of college chemistry and one year of college physics. Radioactive decay; introduction to properties of atomic nuclei; nuclear processes in cosmology; chemical, biomedical and environmental applications of radioactivity; nuclear processes as chemical tools; interaction of radiation with matter.

CHEM 421 Advanced Quantitative Analysis (3) Pre- or corequisites: CHEM 482 and CHEM 483. An examination of some advanced topics in quantitative analysis including nonaqueous titrations, precipitation phenomena, complex equilibria, and the analytical chemistry of the less familiar elements.

CHEM 425 Instrumental Methods of Analysis (3) One hour of lecture, six hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: CHEM 482; and CHEM 483. Modern instrumentation in analytical chemistry. Electronics, spectroscopy, chromatography and electrochemistry.

CHEM 441 Advanced Organic Chemistry (3) Prerequisite: CHEM 481. An advanced study of the compounds of carbon, with special emphasis on molecular orbital theory and organic reaction mechanisms.

CHEM 474 Environmental Chemistry (3) Prerequisite: CHEM 481 or equivalent. The sources of various elements and chemical reactions between them in the atmosphere and hydrosphere are treated. Causes and biological effects of air and water pollution by certain elements are discussed.

CHEM 481 Physical Chemistry I (3) Prerequisite: CHEM 113 or CHEM 153; and MATH 141; and PHYS 142. A course primarily for chemists and chemical engineers.

CHEM 482 Physical Chemistry II (3) Prerequisite: CHEM 481. A course primarily for chemists and chemical engineers.

CHEM 483 Physical Chemistry Laboratory I (2) One hour lecture-recitation and one three-hour laboratory period per week. Corequisite: CHEM 481. An introduction to the principles and application of quantitative techniques in physical chemical measurements. Experiments will be coordinated with topics in CHEM 481.

CHEM 484 Physical Chemistry Laboratory II (2) One hour lecture-recitation and one three-hour laboratory period per week. Prerequisite: CHEM 481 and CHEM 483. Corequisite: CHEM 482. A continuation of CHEM

483. Advanced quantitative techniques necessary in physical chemical measurements. Experiments will be coordinated with topics in CHEM 482.

CHEM 485 Advanced Physical Chemistry (2) Prerequisite: CHEM 482. Quantum chemistry and other selected topics.

CHEM 487 Computer Applications in the Biological and Chemical Sciences (4) Three hours of lecture, three hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: CHEM 113 and CHEM 287 or equivalent; and knowledge of a scientific programming language (PASCAL, FORTRAN or "C"). The utilization of computers to solve chemical and biological problems, with emphasis on the utilization of available software rather than "de novo" programming.

CHEM 491 Advanced Organic Chemistry Laboratory (3) One hour of lecture and eight hours of laboratory per week. Prerequisite: CHEM 243. Formerly CHEM 433 and CHEM 443. Credit will be granted for only one of the following: CHEM 433 and CHEM 443 or CHEM 491. Advanced synthetic techniques in organic chemistry with an emphasis on spectroscopy for structure determination.

CHEM 492 Advanced Inorganic Chemistry Laboratory (3) One hour of lecture and eight hours of laboratory per week. Corequisite: CHEM 401. Synthetic and structural inorganic chemistry. Emphasis on spectroscopy methods for structure determination. Students complete an individual special project. (Designed to satisfy the university requirement for a capstone course in chemistry.)

CHEM 498 Special Topics in Chemistry (3) Three lectures or two lectures and one three-hour laboratory per week. Prerequisite varies with the nature of the topic being considered. Course may be repeated for credit if the subject matter is substantially different, but not more than three credits may be accepted in satisfaction of major supporting area requirements for chemistry majors.

CHIN —Chinese

CHIN 101 Intensive Elementary Chinese I (6) Non-majors admitted only after a placement interview. Introduction to speaking, reading , and writing Chinese with an emphasis on mastering the essentials of pronunciation, basic characters and structural patterns.

CHIN 102 Elementary Spoken Chinese (3) Prerequisite: CHIN 101 or equivalent. Non-majors admitted only after a placement interview. Continued study of grammatical patterns and vocabulary buildup with particular emphasis on conversation. May be taken in conjunction with CHIN 103.

CHIN 103 Elementary Written Chinese (3) Prerequisite: CHIN 101 or equivalent. Non-majors admitted only after a placement interview. Continued study of grammatical patterns and buildup of vocabulary with particular emphasis on reading and writing. May be taken in conjunction with CHIN 102.

CHIN 201 Intermediate Spoken Chinese I (3) Prerequisite: CHIN 102 or equivalent. Non-majors admitted only after a placement interview. Emphasis on development of conversational skills with vocabulary build-up and controlled conversation.

CHIN 202 Intermediate Written Chinese I (3) Prerequisite: CHIN 103 or equivalent. Non-majors admitted only after a placement interview. Reading and writing skills with emphasis on grammar and Chinese characters.

CHIN 203 Intermediate Spoken Chinese II (3) Prerequisite: CHIN 201 or equivalent. Non-majors admitted only after a placement interview. Continuation of CHIN 201.

CHIN 204 Intermediate Written Chinese II (3) Prerequisite: CHIN 202 or equivalent. Non-majors admitted only after a placement interview. Continuation of CHIN 202.

CHIN 213 Chinese Poetry into English: An Introduction (3) Issues in the intercultural and interlingual interpretation of foreign literature through the study of Western translations of and scholarship on selected Chinese poets. No knowledge of Chinese required.

CHIN 301 Advanced Chinese I (3) Prerequisite: CHIN 202 or equivalent. Non-majors admitted only after a placement interview. Readings in expository and fictional writing with conversation and composition.

CHIN 302 Advanced Chinese II (3) Prerequisite: CHIN 301 or equivalent. Non-majors admitted only after a placement interview. Continuation of CHIN 301.

CHIN 303 Business Chinese I (3) Prerequisites: CHIN 203; and CHIN 204 or equivalent. Non-majors admitted only after a placement interview. Conversation, reading, and writing applicable to Chinese business transactions, social meetings, and meetings with government organizations, plus background material in English on professional business practices and social customs associated with business.

CHIN 304 Business Chinese II (3) Prerequisite: CHIN 303 or equivalent. Non-majors admitted only after a placement interview. Continuation of CHIN 303.

CHIN 313 Chinese Poetry and Prose in Translation (3) Writing of the major poets, essayists, and historians from the 10th century B.C. to the 12th century A.D. No knowledge of Chinese is required.

CHIN 314 Chinese Fiction and Drama in Translation (3) Representative short stories, novels, and plays from the third through the nineteenth centuries. No knowledge of Chinese is required.

CHIN 315 Modern Chinese Literature in Translation (3) Major works of fiction and drama from 1920 to the present read in the context of social and literary change. Emphasis on western and traditional Chinese influences on the writers and their works. No knowledge of Chinese required.

CHIN 388 Topics in Chinese Literature in Translation (3) Repeatable to 6 credits if content differs. Analysis of significant themes and structures in Chinese literature. No knowledge of Chinese required.

CHIN 401 Readings in Modern Chinese I (3) Prerequisite: CHIN 302 or equivalent. Non-majors admitted only after a placement interview. Readings in history, politics, economics, sociology, and literature. Emphasis on wide-ranging, rapid reading, reinforced by conversations and compositions.

CHIN 402 Readings in Modern Chinese II (3) Prerequisite: CHIN 401 or equivalent. Non-majors admitted only after a placement interview. Continuation of CHIN 401.

CHIN 403 Classical Chinese I (3) Prerequisite: CHIN 302. Introductory classical Chinese using literary and historical sources in the original language.

CHIN 404 Classical Chinese II (3) Prerequisite: CHIN 302. Further classical studies by various writers from famous ancient philosophers to prominent scholars before the new culture movement.

CHIN 405 Advanced Conversation and Composition (3) Prerequisite: CHIN 302 or permission of instructor. Non-majors admitted only after a placement interview. Practice in writing essays, letters, and reports on selected topics. Conversation directed toward everyday situations and topics related to life in China. Conducted in Chinese.

CHIN 415 Readings in Current Newspapers and Periodicals (3) Prerequisite: CHIN 402 or equivalent. Non-majors admitted only after a placement interview. Reading of periodical literature on selected topics with discussions and essays in Chinese.

CHIN 421 Sounds and Transcriptions of Mandarin Chinese (3) Production and recognition of Mandarin speech sounds and tones, their phonological patterns, comparison with English, and representation by the various Romanization systems.

CHIN 422 Advanced Chinese Grammar (3) Chinese sentence patterns studied contrasted with English and in terms of current pedagogical as well as linguistic theories.

CHIN 431 Translation and Interpretation I (3) Prerequisite: CHIN 302 or equivalent and permission of department. Theory and practice of Chinese/English translation and interpretation with emphasis on translation.

CHIN 432 Translation and Interpretation II (3) Prerequisite: CHIN 402 or equivalent and permission of department. Workshop on Chinese/English translation and interpretation, with emphasis on seminar (consecutive) interpretation and introduction to conference (simultaneous) interpretation.

CHIN 441 Traditional Chinese Fiction (3) Prerequisite: permission of department. Major works of fiction from the 4th century tales of the marvelous through the 19th century Ching novel. Taught in Chinese.

CHIN 442 Modern Chinese Fiction (3) Prerequisite: permission of department. Examination, through selected texts, of the writer's role as shaper and reflector of the Republican and Communist revolutions. Taught in Chinese.

CHIN 499 Directed Study in Chinese (1-3) Prerequisite: permission of instructor. Repeatable to 6 credits if content differs. Readings in Chinese under faculty supervision.

CLAS—Classics

CLAS 100 Classical Foundations (3) Aspects of the ancient world taught through the medium of influential classical texts.

CLAS 170 Greek and Roman Mythology (3) Taught in English, no prerequisite; cannot be taken for language credit. This course is particularly recommended for students planning to major in foreign languages, English, history, the fine arts, or journalism.

CLAS 270 Greek Literature in Translation (3) Selections in translation of Greek literature from Homer to Lucian, with special emphasis on epic and dramatic poetry. No knowledge of Greek or Latin is required.

CLAS 271 Roman Literature in Translation (3) Selections in translation of Latin literature to the time of Apuleius. Special emphasis will be placed on poetry of the Augustan Age. No knowledge of Latin is required.

CLAS 280 English Word Building From Latin and Greek (3) General English vocabulary through the study of Latin and Greek roots, prefixes, suffixes, etymologies, and principles of linguistic change.

CLAS 290 Greek and Latin Medical Terminology (3) Basic medical vocabulary through the study of Greek and Latin roots, prefixes and suffixes. No previous knowledge of Greek or Latin required.

CLAS 309 Special Topics in Classical Literature (3) Repeatable to 9 credits if content differs. Readings in translation.

CLAS 320 Women in Classical Antiquity (3) A study of women's image and reality in ancient Greek and Roman societies through an examination of literary, linguistic, historical, legal and artistic evidence; special emphasis in women's role in the family, views of female sexuality, and the place of women in creative art. Readings in primary sources in translation and modern critical writings.

CLAS 330 Greek and Roman Religion (3) Survey of Greek and Roman religious beliefs and practices from Minoan-Mycenaean period to rise of Christianity.

CLAS 372 Classical Epic (3) Introduction to major classical epic poems in translation.

CLAS 374 Greek Tragedy in Translation (3) Study and analysis of the tragedies of Aeschylus, Sophocles and Euripides with special attention to the concepts of character and of thought as conceived by Aristotle in The Poetics.

CLAS 375 Ancient Comedy (3) Representative plays by Aristophanes, Meanander, Plautus and Terence in translation; examination of Greek tradition in Roman and postclassical periods.

CLAS 376 The Ancient Novel (3) Reading and analysis of ancient fictional prose narratives.

CLAS 380 Ancient Biography (3) Analysis of ancient biographies as literature in translation.

CLAS 411 Greek Drama (3) Also offered as CMLT 411. Credit will be granted for only one of the following: CLAS 411 or CMLT 411. The chief works of Aeschylus, Sophocles, Euripides, and Aristophanes in English translations.

CLAS 420 The Classical Tradition (3) Examination of the role of classical tradition in western thought, with particular regard to literature.

CLAS 470 Advanced Greek and Roman Mythology (3) Prerequisite: CLAS 170 or permission of department. Selected themes and characters of Greek and Roman

myth. History of the study of myth and research methods in mythology.

CLAS 488 Independent Study in Classical Civilization (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

CLAS 494 Senior Seminar in Classics (3) Limited to graduating classics majors. To be taken in the last year and preferably the last semester of the undergraduate program. Topics will vary each semester; most will be interdisciplinary or will cross historical periods. The course will provide a seminar experience in material or methodologies not otherwise available to the major.

CLAS 495 Senior Thesis in Classics (3) Prerequisite: permission of department. Prior departmental approval of research topic is required. Available to all students who wish to pursue a specific research topic.

CLAS 499 Independent Study in Classical Languages and Literatures (1-3) Prerequisite: permission of department.

CMLT—Comparative Literature

CMLT 214 Film Form and Culture (3) Introduction to film forms in international perspective. Emphasis on the techniques of film analysis, distinctions among film genres, and the history of cinema.

CMLT 235 Introduction to the Literatures of the African Diaspora (3) Credit will be granted for only one of the following: CMLT 235 or ENGL 235. Introduction to authors, periods, and genres reflecting the diversity of African and African Diaspora cultures.

CMLT 270 Global Literature and Social Change (3) Comparative study of literature through selected literary works from several non-Western cultures, viewed cross-culturally in light of particular social, political, and economic perspectives.

CMLT 275 World Literature by Women (3) Comparative study of selected works by women writers of several countries, exploring points of intersection and divergence in women's literary representations.

CMLT 277 Literatures of the Americas (3) Comparative study of several North, South, and Central American cultures with a focus on the specificities, similarities, and divergences of their literary and cultural texts.

CMLT 411 The Greek Drama (3) Also offered as CLAS 411. Credit will be granted for only one of the following: CMLT 411 or CLAS 411. The chief works of Aeschylus, Sophocles, Euripides, and Aristophanes in English translations. Emphasis on the historic background, on dramatic structure, and on the effect of the Attic drama upon the mind of the civilized world.

CMLT 415 The Old Testament As Literature (3) A study of sources, development and literary types.

CMLT 416 New Testament As Literature (3) A knowledge of Greek is helpful, but not essential. A study of the books of the New Testament, with attention to the relevant historical background and to the transmission of the text.

CMLT 421 The Classical Tradition and Its Influence in the Middle Ages and the Renaissance (3) Reading knowledge of Greek or Latin required. Emphasis on major writers.

CMLT 422 The Classical Tradition and Its Influence in the Middle Ages and the Renaissance (3) Reading knowledge of Greek and Latin required. Emphasis on major writers.

CMLT 430 Literature of the Middle Ages (3) Narrative, dramatic and lyric literature of the middle ages studied in translation.

CMLT 433 Dante and the Romance Tradition (3) A reading of the divine comedy to enlighten the discovery of reality in western literature.

CMLT 461 Romanticism: Early Stages (3) Reading knowledge of French of German required. Emphasis on England, France and Germany

CMLT 462 Romanticism: Flowering and Influence (3) Reading knowledge of French and German required. Emphasis on England, France and Germany.

CMLT 469 The Continental Novel (3) The novel in translation from Stendhal through the existentialists, selected from literatures of France, Germany, Italy, Russia, and Spain.

CMLT 470 Ibsen and the Continental Drama (3) Emphasis on the major work of Ibsen, with some attention given to selected predecessors, contemporaries and successors.

CMLT 479 Major Contemporary Authors (3)CMLT 488 Genres (3) Repeatable to 6 credits if content differs. A study of a recognized literary form, such as tragedy, epic, satire, literary criticism, comedy, tragicomedy, etc.

CMLT 489 Major Writers (3) Each semester two major writers from different cultures and languages will be studied. Authors will be chosen on the basis of significant relationships of cultural and aesthetic contexts, analogies between their respective works, and the importance of each writer to his literary tradition.

CMLT 498 Selected Topics in Comparative Literature (3)

CMSC—Computer Science

CMSC 103 Introduction to Computing (3) An introduction to computing for non-computer science majors. Basic terminology and concepts of computing. Hands-on experience on personal computer with applications software such as word processor, spreadsheet, and database management system. Social issues of computing. (Not applicable to the major requirements in computer science.)

CMSC 104 FORTRAN Programming (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: MATH 110. Not applicable to the major requirements in computer science. Not open to students who have completed CMSC 110. Design and analysis of programs in FORTRAN. An introduction to computing, using structured programming concepts.

CMSC 105 Pascal Programming (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: MATH 110. Not applicable to major requirements in computer science. Will not qualify a student to take the CMSC 112 exemption examination. Credit will be granted for only one of the following: CMSC 105, CMSC 112, or CMSC 120 (If CMSC 105 is taken BEFORE CMSC 112, then credit will be granted for both). Design and analysis of programs in Pascal. An introduction to computer programming, using structured programming concepts.

CMSC 106 Introduction to C Programming (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: MATH 110. Not applicable to the major requirements in computer science. Design and analysis of programs in C. An introduction to computing using structured programming concepts.

CMSC 107 Introduction to the UNIX Operating System (3) Recommended: prior experience with computing. Effective use of UNIX tools for students of all disciplines. UNIX file system; shell programming; text editing; filters; pipes; macro processing; data analysis; text processing; document maintenance.

CMSC 112 Computer Science I (4) Three hours of lecture and two hours of laboratory per week. Pre- or corequisite: MATH 140. With CMSC 113, this course forms a one-year sequence for computer science majors. Design and analysis of programs using structured programming and data abstraction. Formal syntax and semantics, and program verification. Conducted in Pascal.

CMSC 113 Computer Science II (4) Three hours of lecture and two hours of laboratory per week. Prerequisites. (CMSC 150 and CMSC 112, each with a grade of C or better) or permission of department based on satisfactory performance on the computer science placement exam. Corequisite: MATH 141. Credit will be granted for only one of the following: CMSC 113 and CMSC 120. A continuation of CMSC 112. Intended for computer science majors.

CMSC 150 Introduction to Discrete Structures (3) Two hours of lecture and two hours of discussion/recitation per week. Pre- or corequisite: MATH 140. Formerly CMSC 250. Fundamental mathematical concepts related to computer science, including finite and infinite sets, relations, functions, and propositional logic. Introduction to other techniques, modeling and solving problems in computer science. Introduction to permutations, combinations, graphs, and trees with selected applications.

CMSC 211 Assembly Language Programming (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: CMSC 113 or CMSC 120. Assembly language programming, assemblers, loaders, linkage editors, and macros.

CMSC 251 Algorithms (3) Prerequisite: CMSC 112; and CMSC 150; and MATH 140; a grade of C or better in CMSC 150 and CMSC 112. A systematic study of correctness and complexity of some elementary algorithms related to sorting, graphs and trees, and combinatorics.

CMSC 305 Advanced Pascal and Elementary Data Structures (4) Prerequisite: CMSC 105 or CMSC 112. Not applicable to the major requirements in computer science. Credit will be granted for only one of the following: CMSC 113, CMSC 305, or CMSC 220. Stacks, queues, ordered linked lists, binary tres. Recursion. Sorting and searching. Emphasis on program design and on algorithm development and analysis. A continuation of CMSC 105.

CMSC 311 Computer Organization (3) Prerequisite: CMSC 113 with a grade of C or better. Introduction to assembly language. Design of digital logic circuits. Organization of central processors, including instruction sets, register transfer operations, control microprogramming, data representation, and arithmetic algorithms. Memory and input/output organization.

CMSC 330 Organization of Programming Languages (3) Prerequisite: CMSC 113 with grade of C or better. The run-time organization of programming languages. Algebraic languages (e.g. Algol, PL/1, Pascal). Dynamic versus static scope rules. Storage for strings, arrays, and records.

CMSC 390 Honors Paper (3) Prerequisite: admission to CMSC Honors Program. Special study or research directed toward preparation of honors paper.

CMSC 400 Introduction to Computer Systems and Software (3) Prerequisite: MATH 141 and experience with a high-level programming language and (graduate standing or permission of department). Assembly language and instruction execution for Von Neumann Architectures. Records, arrays, pointers, parameters, and recursive procedures. I/O structures and interrupt handling. Finite state automata. Course is intended primarily for graduate students in other disciplines. CMSC 400 may not be counted for credit in the graduate or undergraduate program in computer science.

CMSC 411 Computer Systems Architecture (3) Prerequisites: a grade of C or better in either CMSC 311 or CMSC 400; and permission of department. Input/output processors and techniques. Intra-system communication, buses, caches. Addressing and memory hierarchies. Microprogramming, parallelism, and pipelining.

CMSC 412 Operating Systems (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: (a grade of C or better in CMSC 311 and CMSC 330) or a grade of C or better in CMSC 400, and permission of department. An introduction to batch systems, spooling systems, and third-generation multiprogramming systems. Description of the parts of an operating system in terms of function, structure, and implementation. Basic resource allocation policies.

CMSC 415 Systems Programming (3) Prerequisites: CMSC 412 with a grade of C or better; and permission of department. Basic algorithms of operating system software. Memory management using linkage editors and loaders, dynamic relocation with base registers, paging. File systems and input/output control. Processor allocation for multiprogramming, timesharing. Emphasis on practical systems programming, including projects such as a simple linkage editor, a stand-alone executive, a file system, etc.

CMSC 420 Data Structures (3) Prerequisites: a grade of C or better in CMSC 330 or CMSC 400; and permission of department. Description, properties, and storage allocation of data structures including lists and trees. Algorithms for manipulating structures. Applications from areas such as data processing, information retrieval, symbol manipulation, and operating systems.

CMSC 421 Introduction to Artificial Intelligence (3) Prerequisites: a grade of C or better in CMSC 251 and CMSC 330; and permission of department. Recommended: CMSC 420. Areas and issues in artificial intelligence, including search, inference, knowledge representation, learning, vision, natural languages, expert systems, robotics. Implementation and application of programming languages (e.g. LISP, PROLOG, SMALLTALK), programming techniques (e.g. pattern matching, discrimination networks) and control structures (e.g. agendas, data dependencies).

CMSC 424 Database Design (3) Prerequisite: CMSC 420 with a grade of C or better; and permission of department. Recommended: CMSC 450. Motivation for the database approach as a mechanism for modeling the real world. Review of the three popular data models: relational, network, and hierarchical. Comparison of permissible structures, integrity constraints, storage strategies, and query facilities. Theory of database design logic.

CMSC 426 Image Processing (3) Prerequisite: CMSC 420. An introduction to basic techniques of analysis and manipulation of pictorial data by computer. Image input/output devices, image processing software, enhancement, segmentation, property measurement, Fourier analysis. Computer encoding, processing, and analysis of curves.

CMSC 430 Theory of Language Translation (3) Prerequisites: a grade of C or better in CMSC 330 or CMSC 400; and permission of department. Formal translation of programming languages, program syntax and semantics. Finite state recognizers and regular grammers. Context- free parsing techniques such as recursive descent, precedence, LL(k) and LR(k). Code generation, improvement, syntax-directed translation schema.

CMSC 434 Human Factors in Computer and Information Systems (3) Prerequisites: CMSC 330 with a grade of C or better and PSYC 100 and STAT 400 and permission of department. Human factors issues in the development of software, the use of database systems, and the design of interactive computer systems. Experimentation on programming language control and data structures, programming style issues, documentation, program development strategies, debugging, and readability. Interactive system design issues such as response time, display rates, graphics, on-line assistance, command language, menu selection, or speech input/output.

CMSC 435 Software Design and Development (3) Prerequisites: a grade of C or better in CMSC 420 and CMSC 430; and permission of department. State-of-the-art techniques in software design and development. Laboratory experience in applying the techniques covered. Structured design, structured programming, top-down design and development, segmentation and modularization techniques, iterative enhancement, design and code inspection techniques, correctness, and chief-programmer teams. The development of a large software project.

CMSC 450 Logic for Computer Science (3) Prerequisites: (CMSC 251 and MATH 141) with a grade of C or better and permission of department. Also offered as MATH 450. Credit will be granted for only one of the following: MATH 445 or CMSC 450/MATH 450. Elementary development of propositional and first-order logic accessible to the advanced undergraduate computer science student, including the resolution method in propositional logic and Herbrand's Unsatisfiability Theorem in first-order logic. Included are the concepts of truth, interpretation, validity, provability, soundness, completeness, incompleteness, decidability and semi-decidability.

CMSC 451 Design and Analysis of Computer Algorithms (3) Prerequisites: a grade of C or better in CMSC 113 and CMSC 251; and permission of department. Fundamental techniques for designing and analyzing computer algorithms. Greedy methods, divide-and-conquer techniques, search and traversal techniques, dynamic programming, backtracking methods, branch-and-bound methods, and algebraic transformations.

CMSC 452 Elementary Theory of Computation (3) Prerequisites: a grade of C or better in CMSC 113 and CMSC 251; and permission of department. Alternative theoretical models of computation, types of automata, and their relations to formal grammars and languages.

CMSC 456 Data Encryption and Security (3) Prerequisites: CMSC 420 with a grade of C or better; and permission of department. Recommended: CMSC 451. Methods of protecting computer data from unauthorized use and users by data encryption and by access and information controls. Classical cryptographic systems. Introduction to several modern systems such as data encryption standard and public-key cryptosystems.

CMSC 460 Computational Methods (3) Prerequisites: (a grade of C or better in MATH 240 and MATH 241); and (CMSC 110 or CMSC 113); and permission of department. Also offered as MAPL 460. Credit will be granted for only one of the following: CMSC/MAPL 460 or CMSC/MAPL 466. Basic computational methods for interpolation, least squares, approximation, numerical quadrature, numerical solution of polynomial and transcendental equations, systems of linear equations and initial value problems for ordinary differential equations. Emphasis on methods and their computational properties rather than their analytic aspects. Intended primarily for students in the physical and engineering sciences.

CMSC 466 Introduction to Numerical Analysis I (3) Prerequisites: (a grade of C or better in MATH 240 and MATH 241); and (CMSC 110 or CMSC 113); and permission of department. Also offered as MAPL 466. Credit will be granted for only one of the following: CMSC/MAPL 460 or CMSC/MAPL 466. Floating point computations, direct methods for linear systems, interpolation, solution of nonlinear equations.

CMSC 467 Introduction to Numerical Analysis II (3) Prerequisite: MAPL/CMSC 466 with a grade of C or better; and permission of department. Also offered as MAPL 467. Credit will be granted for only one of the following: CMSC 467 or MAPL 467. Advanced interpolation, linear least squares, eigenvalue problems, ordinary differential equations, fast Fourier transforms.

CMSC 475 Combinatorics and Graph Theory (3) Prerequisites: MATH 240 and MATH 241. Also offered as MATH 475. General enumeration methods, difference equations, generating functions. Elements of graph theory, matrix representations of graphs, applications of graph theory to transport networks, matching theory and graphical algorithms.

CMSC 477 Optimization (3) Prerequisites: (CMSC/MAPL 460, or CMSC/MAPL 466, or CMSC/MAPL 467) with a grade of C or better; and permission of department. Also offered as MAPL 477. Credit will be granted for only one of the following: CMSC 477 or MAPL 477. Linear programming including the simplex algorithm and dual linear programs; convex sets and elements of convex programming; combinatorial optimization, integer programming.

CMSC 498 Special Problems in Computer Science (1-3) Prerequisite: permission of department. An individualized course designed to allow a student or students to pursue a specialized topic or project under the supervision of the senior staff. Credit according to work done.

CNEC — Consumer Economics

CNEC 100 Introduction to Consumer Economics (3) The role of the consumer in modern society. Topics include the consumer in the market, the impact of market failures on the quality of life and the impact of government and business decisions on consumer welfare.

CNEC 298 Special Topics (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Topics of special interest to lower division students under the guidance of department faculty.

CNEC 300 Professional Development (1) A series of lectures focused on career options, career preparation and professional development for majors in textiles and consumer economics.

CNEC 310 Consumer Economics and Public Policy (3) Prerequisites: ECON 201; and ECON 203. The application of economic theory, including benefit-cost analysis, to an evaluation of policy decisions in the private and public sectors which affect the consumer. The economic, social, and political framework within which policy decisions are made.

CNEC 312 Economics of the Family (3) Prerequisite: (ECON 201; and ECON 203) or ECON 205. Application of economic theory to examination of production/consumption decisions of families and households. Analysis of time allocation to market, division of labor in families, household structure, economics of fertility, investment in human capital using economic models and empirical findings.

CNEC 385 Junior Honors Seminar (1) Limited to juniors in the departmental honors program. Spring semester. Readings, reports and discussion of selected topics.

CNEC 388 Field Work and Analysis in Consumer Economics (3-6) Prerequisite: permission of department. Senior standing. For CNEC and TEXT majors only. Repeatable to 6 credits if content differs. Also offered as TEXT 388. Supervised professional field work experience in business industry, government or education. A seminar and written critique of the field work experience will be required to relate formal academic study to student work experiences. Students must apply a semester in advance.

CNEC 400 Research Methods (3) Prerequisite: MATH 110 or MATH 115. Not open to students who have completed TEXT 400 or BMGT 230. Research methodology in textiles and consumer economics, with particular emphasis on the application of statistical concepts and techniques to the analysis of data from the areas of textiles and consumer economics.

CNEC 410 Consumer Finance (3) Prerequisites: ECON 201; and ECON 203. Also offered as FMCD 441. Credit will be granted for only one of the following: FMCD 441 or CNEC 410. An economic approach to the problems of income allocation and consumer financial planning, including income maximization, principles of asset choice, financial management and risk management. The effects of fiscal and monetary policies on lifetime economic planning.

CNEC 431 The Consumer and the Law (3) A study of legislation affecting consumer goods and services. Topics covered include product safety and liability, packaging and labeling, deceptive advertising, and consumer credit. The implications of such legislation for consumer welfare with particular emphasis on the disadvantaged groups in our society will be examined.

CNEC 433 Consumer Law: Advertising and Solicitation (3) Prerequisite: CNEC 431 or permission of department. An advanced study of the legal consequences of inducing consumers to enter into commercial transactions. Individual consumer remedies, collective consumer remedies and government regulation.

CNEC 435 Economics of Consumption (3) Prerequisites: (ECON 201; and ECON 203) or (ECON 205 for non-majors). The application of economic theory to a study of consumer decision-making and its role in a market economy at both the individual and aggregate levels. Topics covered include empirical studies of consumer spending and saving, the consumer in the market and collective consumption.

CNEC 437 Consumer Behavior (3) Prerequisites: PSYC 100; and SOCY 100. Also offered as HLTH 437. Credit will be granted for only one of the following: CNEC 437 or HLTH 437. An application of the behavioral sciences to a study of consumer behavior. Current theories, models and empirical research findings are explored.

CNEC 455 Product Standards (3) Prerequisite: permission of department. The process of product standard development, and the significance of such standards to the consumer. History, procedures and uses of standards by industry and government, including both voluntary and regulatory standardization; the impact of product standards, and mechanisms for obtaining consumer input in the standardization process.

CNEC 456 Product Liability and Government Regulation (3) Prerequisite: CNEC 431 or permission of department. Legal concepts involved in society's determination of consumer's rights to product safety. Litigation determining the obligation of manufacturers and sellers to injured consumers. Government regulations defining the obligations of manufacturers to design and construct products in accordance with government standards.

CNEC 457 Product Safety (3) Prerequisite: permission of department. An interdisciplinary investigation of consumer product safety. Major statutes and agencies regulating safety. Alternative means of promoting consumer product safety. The application of product liability and cost benefit analysis to the economics of product safety. Consumer response to safety labeling, advertising and educational efforts.

CNEC 488 Senior Honors Thesis (1-4) Limited to undergraduate students in the departmental honors program. An independent literary, laboratory or field

study, conducted throughout the student's senior year Student should register in both fall and spring.

CNEC 498 Special Studies (2-4) Independent study by an individual student or by a group of students in advanced work not otherwise provided in the department. Students must prepare a description of the study they wish to undertake. The plan must be approved by the faculty directing the study and the department chairman.

COOP— Cooperative Education Program

COOP 098 Summer Co-Op Work Experience (0) Prerequisites: satisfactory completion of 36 credits; and permission of the Director of the Cooperative Education Program. Practical, full-time work experience in either private or government agencies which supplements and enhances the theories, principles, and practices in the normal education program. Students must register for COOP 098 if they are working during a summer semester.

COOP 099 Co-Op Work Experience (0) Prerequisites: satisfactory completion of 36 credits; and permission of the Director of the Cooperative Education Program. Practical, full-time work experience in either private or government agencies which supplements and enhances the theories, principles, and practices in the normal education program. Students must register for COOP 099 if they are working during the fall or spring semester.

DANC — Dance

DANC 100 Modern Dance I for Non-Majors (2) Basic principles of modern dance, emphasizing fundamentals of movement.

DANC 102 Rhythmic Training for Dance (2) Basic approaches to rhythmic principles related to dance.

DANC 104 Modern Dance II for Non-Majors (2) Prerequisite: DANC 100. A continuation of the principles introduced in DANC 100.

DANC 109 Improvisation I (2) Repeatable to 4 credits. An introduction to the process of spontaneous movement discovery involving solo and group movement experiences.

DANC 124 Ballet I for Non-Majors (2) Barre and center work for alignment, strength, flexibility and coordination. Introduction to ballet terminology.

DANC 127 Ballet II for Non-Majors (2) Prerequisite: DANC 124 or audition. Continuation of DANC 124.

DANC 138 Introduction to Ethnic Dance (2) Repeatable to 4 credits with permission of department. Traditional dances and music of selected cultures.

DANC 154 Jazz I for Non-Majors (2) Introduction to the jazz style in dance for the beginning student.

DANC 158 Jazz I for Majors Only (2) Repeatable to 4 credits. Introduction to the jazz style in dance for the beginning student.

DANC 171 Movement Integration (2) One hour of lecture and two hours of laboratory per week. Techniques for reducing tension and achieving integrated muscular control and coordination.

DANC 199 Practicum in Choreography, Production and Performance I (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Choreography, production, and performance of student works, both on and off campus.

DANC 200 Introduction to Dance (3) A study of dance as a form of communication and as an art form; a survey of the theories and styles of dance, and their relationships to other art forms

DANC 208 Choreography I (3) Prerequisites: DANC 102 and DANC 109. Repeatable to 6 credits Basic principles of dance composition: space, time dynamics, and movement invention. The development of critical awareness

DANC 210 Dance Production (3) A survey of theatre crafts and techniques involved in dance production, including lighting, sound, set and costume design and construction, stage-management and videotaping.

DANC 228 Ballet I for Majors (2) Repeatable to 4 credits. Barre and center work for alignment, strength, flexibility and coordination. Introduction to ballet terminology

DANC 229 Ballet II for Majors (2) Prerequisite: DANC 228 or audition. Repeatable to 4 credits Continuation of DANC 228.

DANC 248 Modern Dance I for Majors (3) Prerequisite: permission of department. Repeatable to 6 credits. Dance movement placement, rhythm, dynamics, space and dance phrases.

DANC 249 Modern Dance II for Majors (3) Prerequisite: DANC 248 or audition. Repeatable to 6 credits. Continuation of DANC 248.

DANC 258 Jazz II (2) Prerequisite: DANC 158 or audition. Repeatable to 4 credits. Continuation of the principles of Jazz I. Emphasis on style and execution of movement.

DANC 299 Practicum in Choreography, Production and Performance II (1-3) Prerequisite: DANC 199 or permission of department. Repeatable to 6 credits. Continuation of DANC 199.

DANC 302 Music Sources for Dance (3) Prerequisite: DANC 102 or permission of department. Study of musical literature, improvisation and composition as they relate to dance. Techniques of instrumental accompaniment.

DANC 305 Principles of Teaching Dance (3) Prerequisites: DANC 102, DANC 208, and DANC 248. Theory and practice of dance instruction including methods, lesson plans and practice teaching.

DANC 306 Creative Dance for Children (3) Prerequisite: DANC 305 or equivalent. Communication of the essential elements of dance to children. The development of movement into simple forms to serve as a symbol of creative individual expression.

DANC 308 Choreography II (3) Prerequisite: DANC 208. Repeatable to 6 credits. Exploration of the formal elements of choreography; theme, development, repetition, contrast, transition, continuity and structure.

DANC 309 Improvisation II (2) Prerequisite: DANC 109 or audition. Repeatable to 4 credits.Continuation of DANC 109.

DANC 310 Dance Lighting (3) Prerequisite: DANC 210. Two lectures and two laboratory periods per week Theory and practice of stage lighting with specific reference to designing for dance.

DANC 328 Ballet III (2) Prerequisite: DANC 229 or audition. Repeatable to 4 credits. Execution of the vocabulary of ballet movement with technical accuracy

DANC 329 Ballet IV (2) Prerequisite: DANC 328 or audition. Repeatable to 4 credits. Continuation of DANC 328.

DANC 348 Modern Dance III for Majors (3) Prerequisite: DANC 249 or audition. Repeatable to 6 credits. The body as an instrument of expression; techniques for increasing kinesthetic sensitivity.

DANC 349 Modern Dance IV for Majors (3) Prerequisite: DANC 348 or audition. Repeatable to 6 credits. Continuation of DANC 348

DANC 365 Labanotation (3) Prerequisites: DANC 102 and DANC 248. Formerly DANC 266. Introduction to Rudolf Laban's system of structural movement analysis.

DANC 370 Kinesiology for Dancers (4) A study of the biological and physical principles of movement and the effects of dancing upon the structure and function of the human body

DANC 379 Practicum in Dance (1-3) Repeatable to 12 credits Performing experience for the student dancer who has developed a professional level of competence

DANC 388 Choreography III (3) Prerequisite: DANC 308 or equivalent. Repeatable to 6 credits. Theoretical and creative aspects of choreography for small groups Emphasis on individual projects.

DANC 398 Directed Studies in Dance (1-6) Prerequisite: permission of department Repeatable to 6 credits

DANC 399 Practicum in Choreography, Production and Performance III (1-3) Prerequisite: DANC 299 or permission of department Repeatable to 6 credits. Continuation of DANC 299

DANC 410 Technical Theater Production for Dance (3) Two hours of lecture and two hours of laboratory per week Prerequisite: DANC 210 or equivalent (or permission of department). A study of the theoretical principles of production and the practical application of those principles to the presentation of dance works.

DANC 411 Dance Management and Administration (3) Principles of dance management and administration, including organization of touring, bookings, budgets, public relations, grantsmanship and audience development.

DANC 428 Advanced Ballet Technique I (1) Two hours of laboratory per week. Prerequisite: DANC 329 or audition. Repeatable to 3 credits. Advanced ballet technique with emphasis on physical and expressive skills

DANC 429 Advanced Ballet Technique II (1) Two hours of laboratory per week Prerequisite: DANC 428 Repeatable to 3 credits. Intensive work in ballet technique for the professionally-oriented dancer

DANC 448 Modern Dance V for Majors (3) Prerequisite: DANC 349 or audition. Repeatable to 6 credits. Complex phrases of modern dance movement with emphasis on articulation and expression.

DANC 449 Modern Dance VI for Majors (3) Prerequisite: DANC 448 or audition. Repeatable to 6 credits. Continuation of DANC 448.

DANC 466 Laban Movement Analysis (3) Introduction to Rudolf Laban's system of qualitative movement analysis in relation to understanding personal movement style. Application to dance performance, teaching, composition and research.

DANC 468 Modern Repertory (3) Prerequisite: DANC 349 or permission of department. Repeatable to 6 credits if content differs. Form, content, music, design and performance of modern dance works.

DANC 471 Movement Behavior (3) The social psychology of movement, reciprocity of physical and emotional behavior.

DANC 479 Advanced Practicum in Dance (1-3) Repeatable to 6 credits. Advanced level performing experience for the student dancer who has developed an advanced professional level of competence.

DANC 482 History of Dance I (3) Prerequisite: DANC 200. The development of dance from primitive times to the Middle Ages and the relationship of dance forms to patterns of culture.

DANC 483 History of Dance II (3) Prerequisite: DANC 200. The development of dance from the Renaissance period to the present time and the relationship of dance forms to patterns of culture.

DANC 485 Seminar in Dance (3) Prerequisite: DANC 483. Senior standing For DANC majors only Formerly DANC 484 Individual research leading to a presentation with written documentation of the process, serving as a culmination of undergraduate study for dance majors.

DANC 489 Special Topics in Dance (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs Theoretical, choreographic, pedagogic, or performance study

DANC 499 Practicum in Choreography, Production and Performance IV (1-6) Prerequisite: permission of permission of department. Repeatable to 6 credits Advanced workshop in dance presentation, including performing, production and planned field experiences

DESN — Design

DESN 101 Design Studio I (3) One hour of lecture and four hours of laboratory per week For DESN majors only Credit will be granted for only one of the following APDS 101 or DESN 101 Formerly APDS 101 Principles and elements of two-dimensional design composition. Discussion of design process theories and other issues relating to design activity (e.g., creativity, functional utility, market forces, person-environment relations, client-designer-user interaction, problem constraints).

DESN 102 Design Studio II (3) Six hours of laboratory per week. Prerequisite: DESN 101. Corequisite: DESN 103. For DESN majors only. Credit will be granted for only one of the following: DESN 102 or APDS 102. Formerly APDS 102. Continued investigation of design principles and elements. Special emphasis on the study of color and relevant physical, psychological, and physiological factors. Creative exploration and application of design concepts through studio exercises.

DESN 103 Design Studio III (3) One hour of lecture and four hours of laboratory per week. Prerequisite: DESN 101. Corequisite: DESN 102. For DESN majors only. Credit will be granted for only one of the following: APDS 103 or DESN 103. Formerly APDS 103. Preference in registration accorded to design students. Principles and elements of three-dimensional design. Application of concepts attained in DESN 102 to the three-dimensional domain. Special emphasis on natural shaping systems, modularity, scale, and group problem solving. Creative exploration and application of such concepts through studio exercises.

DESN 204 History of Design (3) Prerequisite: ARTH 200. Credit will be granted for only one of the following: APDS 104 or DESN 204. Formerly APDS 104. Historical introduction to the world of designed artifacts from the industrial revolution to the present. Style development, cultural influences, symbolic form and meaning in design, media, materials, and technological advancements.

DESN 205 Drawing for Designers (3) Six hours of laboratory per week. Prerequisites: DESN 102; and DESN 103; and EDIT 160. For advertising design and design majors only. Credit will be granted for only one of the following: APDS 211 or DESN 205. Formerly APDS 211. Aspects of drawing to include balance, proportion, perspective, and composition. Sketch techniques and finished compositions applied to the human figure and objects in space.

DESN 210 Presentation Techniques for Visual Communication Design (3) Six hours of laboratory per week. Prerequisite: DESN 205. For advertising design majors only. Credit will be granted for only one of the following: APDS 210 or DESN 210. Formerly APDS 210. Exploration of a variety of principles, media and techniques used by designers to solve illustration/ design problems.

DESN 212 Graphic Techniques for Interior Design (3) Six hours of laboratory per week. Prerequisite: DESN 205. For interior design majors only. Credit will be granted for only one of the following: HSAD 210 or DESN 212. Formerly HSAD 210. Representation of the interior architectural space. Orthogonal, perspective, axonometric and isometric views. Scale models and rendering techniques utilizing various media in black, white, and color.

DESN 230 Typography I (3) Prerequisites: DESN 102; and DESN 103; and EDIT 160. For advertising design majors only. Credit will be granted for only one of the following: APDS 330 or DESN 230. Formerly APDS 330. Introduction to the use of typographics in visual communication. Overview of the historical development of typography, the mechanics of typographic symbols and letter construction, and the graphic production of such symbols.

DESN 231 Typography II (3) One hour of lecture and four hours of laboratory per week. Prerequisite: DESN 230. For advertising design majors only. The further study and application of typographics as a primary graphic component in visual communication. Emphasis on the effective use of typographic images to communicate specific messages to a target audience.

DESN 237 Photography I (3) One hour of lecture and four hours of laboratory per week. Prerequisite: DESN 205. For advertising design majors only. Credit will be granted for only one of the following: APDS 237 or DESN 237. Formerly APDS 237. Introduction to black and white photography as visual communication. Basic technical and aesthetic vocabulary, camera mechanics, and dark room techniques. Additional studio time to be arranged.

DESN 246 Materials in Interior Design (3) Prerequisites: DESN 102 and DESN 103. For interior design majors only. Credit will be granted for only one of the following: HSAD 246 or DESN 246. Formerly HSAD 246. Materials utilized in the construction of the interior space and its components, including furnishings. Basic fabrication processes for natural and man-made materials, sources, current directions and developments.

DESN 300 Introduction to Computer-Aided Design and Computer Graphics (3) Prerequisite: MATH 110. Strengths and limitations of graphics software and hardware. Two-dimensional and three-dimensional software applications. Lectures and demonstrations.

DESN 320 Illustration I (3) Six hours of laboratory per week. Prerequisites: DESN 210; and DESN 230. For advertising design majors only. Credit will be granted for only one of the following: APDS 320 or DESN 320. Formerly APDS 320. Development of narrative imagery, pictorial illusion, editorial and conceptual interpretations and their combined potential for visual communication. Direct drawing from life as well as memory, and photographic reference in editorial, advertising, and retail illustration.

DESN 331 Advertising Design Studio I (3) Six hours of laboratory per week. Prerequisites: DESN 231; and DESN 320. For advertising communication design majors only. Credit will be granted for only one of the following: APDS 331 or DESN 331. Formerly APDS 331. Design problems and graphic production methods. Graphics reproduction procedures including preparation of designs requiring line and continuous tone separations as well as color separations.

DESN 333 Three-Dimensional Visual Communications (3) Six hours of laboratory per week. Prerequisite: DESN 231. For advertising design majors only. Exploration of the third dimension as a means of approaching visual communication problems. Topics include 3-D illustration, posed photographic solutions, packaging, exhibit structures, point of purchase displays and signage.

DESN 335 Color Photography (3) One hour of lecture and four hours of laboratory per week. Prerequisites: DESN 230; and DESN 237. Introduction to color photography. Basic technical and aesthetic vocabulary, shooting, lighting, processing of film and prints. Additional lab time to be arranged.

DESN 337 Photography II (3) One hour of lecture and four hours of laboratory per week. Prerequisites: DESN 230; and DESN 237. Credit will be granted for only one of the following: APDS 337 or DESN 337. Formerly APDS 337. Problems in black and white photography, emphasizing message and meaning in communication contexts; artificial light and models. Special processes such as posterization, toning, montage, and digital processing of photographs.

DESN 342 Space Development (3) Six hours of laboratory per week. Prerequisites: DESN 212; and DESN 246; and DESN 247; and EDIT 241. For interior design majors only. Credit will be granted for only one of the following: HSAD 342 or DESN 342. Formerly HSAD 342. Observation, analysis and examination of spaces and their characteristics. Concepts of space quality, cultural context, symbolic content, person-environment relations, and functional aspects. Sketch problems and design projects of simple spaces.

DESN 343 Interior Design Studio I (5) 10 hours of laboratory per week. Prerequisite: DESN 342. For interior design majors only. Credit will be granted for only one of the following: HSAD 343 or DESN 343. Formerly HSAD 343. Evaluation and development of the design process, including problem definition, performance specifications, program development, schematic alternatives, evaluation and development and construction documents. Application of the process to the design of simple spaces with emphasis on concepts of community and privacy.

DESN 350 Newspaper Graphics (3) One hour of lecture and four hours of laboratory per week. Permission of department. Design and layout of newspapers. Analysis of various typographic and illustrative solutions to the design of the front page, section front pages and special supplements.

DESN 352 Exhibition Design (3) Six hours of laboratory per week. Prerequisites: DESN 333 or DESN 342. For advertising and interior design majors only. Credit will be granted for only one of the following: DESN 352 or APDS 332. Formerly APDS 332. Design of spaces for commercial and trade exhibits, portable exhibit structures and museum exhibits. Emphasis on the logical organization of information, and the design of structures and environments for exhibits.

DESN 360 History, Culture and Design (3) Prerequisite: ARTH 200. An historical exploration of design activity from the Industrial Revolution to the present. An examination of the influence of culture, race, ethnic heritage and gender on perception and creation.

DESN 361 History of Visual Communication (3) Prerequisites: DESN 204. Development of graphic design, illustration, and typography since 1850. Study of posters, magazines, typography, corporate identity systems, and other forms of visual communication, and their cultural, social, and political contexts.

DESN 362 Ideas in Design (3) Junior standing. Credit will be granted for only one of the following: DESN 362 or HSAD 362. Formerly HSAD 362. Key concepts in design, including meaning, communication, system, rule, and style. Examples from high design as well as from the ordinary daily environment.

DESN 380 Professional Practices in Visual Communication Design (3) Prerequisite: DESN 430. For advertising design majors only. Credit will be granted for only one of the following: APDS 380 or DESN 380. Formerly APDS 380. Business of design focusing on the development of career strategies, self-presentation techniques and various aspects of the designer-client relationship.

DESN 420 Illustration II (3) Six hours of laboratory per week. Prerequisite: DESN 320. For advertising design majors only. Advanced problems in the fields of editorial, advertising, retail, and corporate illustration. Illustration in conjunction with type. Complex concepts of problem-solving through imagery: verbal, visual, and written articulation of intent and message.

DESN 430 Advertising Design Studio II (3) Six hours of laboratory per week. Prerequisite: DESN 320; and DESN 331. For advertising design majors only. Credit will be granted for only one of the following: DESN 430 or APDS 430. Formerly APDS 430. Professional problems in graphic design, with emphasis upon corporate and institutional identity programs, logos, and collateral materials development; special problems in visual rhetoric.

DESN 437 Advanced Problems in Photographic Media (3) One hour of lecture and four hours of laboratory per week. Prerequisites: DESN 230; and DESN 237; and permission of department. Credit will be granted for only one of the following: DESN 437 or APDS 437. Formerly APDS 437. Use of special tools and processes for imaging and illustration. Additional lab time to be arranged.

DESN 442 Barrier-Free Interior Environments I (3) Prerequisite: DESN 343 or permission of department. For interior design majors only. Credit will be granted for only one of the following: HSAD 442 or DESN 442. Formerly HSAD 442. Design requirements reflecting physical limitations and design of support systems for the disabled.

DESN 443 Barrier-Free Interior Environments II (3) Six hours of laboratory per week. Prerequisite: DESN 442 or permission of department. For interior design majors only. Credit will be granted for only one of the following: HSAD 443 or DESN 443. Formerly HSAD 443. Application of principles of barrier-free design to the solutionof environmental problems.

DESN 444 Professional Practices in Interior Design (3) Prerequisite: DESN 343. For interior design majors only. Credit will be granted for only one of the following: DESN 444 or HSAD345. Formerly HSAD 345. Professional career opportunities, ethics, and practices. Contract negotiation and contract documents. Professional organizations. Portfolio evaluation.

DESN 445 Interior Design Studio II (5) 10 hours of laboratory per week. Prerequisite: DESN 343. For interior design majors only. Credit will be granted for only one of the following: DESN 445 or HSAD 344. Formerly HSAD 344. Continuation of DESN 343. Emphasis on the hierarchy of program requirements in the solution of interior environment problems.

DESN 446 B.A. Thesis in Interior Design (6) 12 hours of laboratory per week. Prerequisite: DESN 445. For interior design majors only. Credit will be granted for only one of the following: HSAD 441 or DESN 446. Formerly HSAD 441. Concepts and skills learned in prior courses are brought to bear on the programming and solution of an interior design problem requiring the integration of complex requirements. Student projects will be expected to meet the creative and technical requirements of the interior design profession.

DESN 447 Designing Interior Environments for Special Populations (3) One hour of lecture and four hours of laboratory per week. Prerequisites: DESN 442 or permission of department. For interior design majors

only. Review of special population literature and application of findings of person/environment research to the design of space for special populations such as the elderly, the physically or mentally handicapped, non-traditional households, and others.

DESN 450 B.A. Thesis in Communication Design (5) 10 hours of laboratory per week. Prerequisite: DESN 430. For advertising design majors only. Credit will be granted for only one of the following: APDS 431 or DESN 450. Formerly APDS 431. Capstone project involving solutions of advanced problems in the design of graphics.

DESN 462 Seminar on Ideas in Design (3) Pre- or corequisites: DESN 362 or permission of department. Credit will be granted for only one of the following: DESN 362 or HSAD 462. Formerly HSAD 462. Further examination and discussion of concepts presented in DESN 362.

DESN 471 Computer Imaging for Design and Illustration (3) One hour of lecture and four hours of laboratory per week. Prerequisite: (DESN 210, and DESN 211; and DESN 300) or permission of department. For advertising design majors only. Exploration of "paint", image processing, and visual presentation software programs. Proficiency, technical, aesthetic and conceptual issues related to electronic imaging.

DESN 472 Computer Applications for Interior Design (3) Six hours of laboratory per week. Prerequisites: (DESN 342; and DESN 300) or permission of department. For interior design majors only. Utilization of available software with emphasis on three-dimensional static and dynamic modeling, integration of computer-aided and manual processes, and attribute extraction.

DESN 473 Computer-Generated Decorative Patterns for Interior Designers (3) Prerequisite: Experience with AUTOCAD or permission of department. For interior design majors only. Experience in the generation of two-and three-dimensional patterns that can be applied to elements of interior design. Emphasis on the relationship between the patterns and the space for which they are designed, as well as on integration of geometry and color.

DESN 474 Gaming Simulation in Design I (3) Prerequisites: Two upper division courses in DESN, HSAD, ARCH, URBS, and/or GVPT, or permission of department. Credit will be granted for only one of the following: DESN 474 or HSAD 451. Formerly HSAD 451. Simulation games as a means to model social interactions in the fields of urban, architectural, interior, and graphic design; planning; housing; and community development. Mathematical gaming theory as it relates to simulation games.

DESN 475 Gaming Simulation in Design II (3) Prerequisite: DESN 362. Credit will be granted for only one of the following: DESN 475 or HSAD 452. Formerly HSAD 452. Design and testing of student-developed simulation games in the fields of urban, architectural, interior, and graphic design; planning; housing; and community development.

DESN 488 Selected Topics in Design (1-6) Repeatable to 6 credits.

DESN 499 Individual Study in Design (3-4) Guidance for the advanced student capable of independent subject matter investigation or creative work. Problem chosen with consent of instructor.

EALL—East Asian Languages and Literatures

EALL 300 The Languages of East Asia (3) A survey of Chinese, Japanese, and Korean, and the languages of other East Asian nationalities. Provides a basic understanding of the structures of these languages. Topics covered include the characterizing features; the relationships of the languages to each other, the geographical, social, and historical settings. No knowledge of Asian languages is required. The course is taught in English.

ECON — Economics

ECON 105 Economics of Social Problems (3) Not open to students who have completed two of the following courses: ECON 201, or ECON 203, or ECON 205. An introduction to modern economic and social problems: their nature, causes, and policy implications.

ECON 201 Principles of Economics I (3) Credit will be granted for only one of the following: ECON 201 or ECON 205. An introduction to the problems of unemployment, inflation, and economic growth. Emphasis on roles of monetary and fiscal policy in the conduct of macroeconomic policy. The efficacy of wage and price controls is analyzed.

ECON 203 Principles of Economics II (3) Recommended: ECON 201. This course emphasizes the behavior of individual consumers and business firms, problems of international trade and finance, the distribution of income, policies for eliminating poverty and discrimination, the problems of environmental pollution, and the impact of different market structures upon economic activity.

ECON 205 Fundamentals of Economics (3) Students in the College of Business and Management are required to take ECON 201 and should not take ECON 205. Not open to students who have completed ECON 201. Credit will be granted for only one of the following: ECON 201 or ECON 205. A one-semester introduction, for non-majors, to the principles of economics and their applications to the leading economic problems of society, including inflation, unemployment, poverty, urban renewal, income inequality, monopoly and market performance, environmental protection, and international trade.

ECON 301 Current Issues in American Economic Policy (3) Prerequisites: (ECON 201; and ECON 203) or ECON 205. Analysis of current economic problems and public policies. Inflation, unemployment, market power, government regulation, poverty and distribution of income, federal budget and tax policy, environment.

ECON 305 Intermediate Macroeconomic Theory and Policy (3) Prerequisites: ECON 201; and ECON 203; and MATH 220. Credit will be granted for only one of the following: ECON 305 or ECON 405. Formerly ECON 401. Analysis of the determination of national income, employment, and price levels. Discussion of consumption, investment, inflation, and government fiscal and monetary policy.

ECON 306 Intermediate Microeconomic Theory (3) Prerequisites: ECON 201; and ECON 203; and MATH 220. Formerly ECON 403. Analysis of the theories of consumer behavior and of the firm, market systems, distribution theory and the role of externalities.

ECON 310 Evolution of Modern Capitalism in Western Europe and the United States (3) The evolution of the capitalist system from its medieval origins to the present. Emphasis on dynamic forces of cumulative change in capitalism, including capital accumulation, technology, expansion of markets, the corporate form of private property in the means of production, and the relation of capitalism to war and revolution.

ECON 311 American Economic Development (3) Prerequisites: (ECON 201; and ECON 203) or ECON 205. An analysis of the major issues in the growth and development of the American economy. Basic economic theory related to such topics as agriculture, banking, industrialization, slavery, transportation, and the depression of the 1930's.

ECON 315 Economic Development of Underdeveloped Areas (3) Prerequisites: (ECON 201; and ECON 203) or ECON 205. Credit will be granted for only one of the following: ECON 315 or ECON 416. Formerly ECON 415. Analysis of the economic and social characteristics of underdeveloped areas. Recent theories of economic development, obstacles to development, policies and planning for development.

ECON 316 Economic Development of Latin America (3) Prerequisites: (ECON 201, and ECON 203) or ECON 205. Institutional characteristics of Latin America and an analysis of alternative strategies and policies for development.

ECON 321 Economic Statistics (3) Prerequisite: MATH 220 or equivalent. Not open to students who have completed BMGT 230 or BMGT 231. Formerly ECON 421. Introduction to the use of statistics in economics. Topics include: Probability, random variables and their distributions, sampling theory, estimation, hypothesis testing, analysis of variance, regression analysis and correlation.

ECON 355 Economics of Crime and Law Enforcement (3) Prerequisite: (ECON 201; and ECON 203) or ECON 205. Economic analysis of crime and the criminal justice system, including such topics as the measurement of crime, economic models of crime, cost and benefits of police and prisons, private protection, gambling and other victimless crimes, and organized crime.

ECON 361 Economics of American Industries (3) Prerequisites: (ECON 201, and ECON 203) or ECON 205. A survey of industrial organization theory. Analysis of the structure conduct, performance, and public policies in selected American industries.

ECON 370 Labor Markets, Human Resources, and Trade Unions (3) Prerequisites: (ECON 201; and ECON 203) or ECON 205. Credit will be granted for only one of the following: ECON 370 or ECON 470. A survey of labor markets and the American labor movement. Analysis of labor force growth and composition, problems of unemployment and labor market operations, theories of wage determination, the wage-price spiral, collective bargaining, and governmental regulation of employment and labor relations.

ECON 374 Sex Roles in Economic Life (3) Prerequisites: (ECON 201 and ECON 203) or ECON 205. Discrimination against women in the labor market; the division of labor in the home and the workplace by sex; the child care industry; women in poverty.

ECON 375 Economics of Poverty and Discrimination (3) Prerequisites: (ECON 201; and ECON 203) or ECON 205. The causes of the persistence of low income groups; the relationship of poverty to technological change, to economic growth, and to education and training; economic results of discrimination; proposed remedies for poverty and discrimination.

ECON 380 Comparative Economic Systems (3) Prerequisites: (ECON 201; and ECON 203) or ECON 205. A comparative analysis of the theory and practice of various types of economic systems, with special attention being given to the economic systems of the United States, the Soviet Union, Mainland China, Western and Eastern Europe, and lesser developed countries.

ECON 381 Environmental Economics (3) Prerequisite: ECON 203 or ECON 205 or permission of department. Application of economic theory to problems of environmental quality and management. Theory of economic externalities, common property resources, alternative pollution control measures, and limits to economic growth.

ECON 385 Economics of Natural Resources (3) Prerequisite: ECON 203 or ECON 205. Economic analysis of natural resource problems, with special emphasis on the rate of use of exhaustible resources and the problems posed for the maintenance of growth.

ECON 390 Economics and Public Policy (3) Prerequisites: ECON 201 and ECON 203. Application of economic reasoning to public policy issues, many of which are not exclusively, or even primarily economic. Policies to save lives, to distribute transplantable human organs, to deter and punish crime, and to regulate discrimination in health insurance are examples.

ECON 396 Independent Honors Study (3) Prerequisite: candidacy for honors in economics or by permission of instructor. Normally taken in senior year. Course will explore selected topics in economic theory and its application in depth. Analysis of methodologies in economic research and the development of student skills in research methods. Students will prepare workshop papers.

ECON 397 Honors Thesis (3) Prerequisites: ECON 396 and candidacy for honors in economics. General supervision will be provided through assembled meetings with the professor in charge of the course.

ECON 398 Topics in Economics (3) Repeatable to 6 credits if content differs. This course is designed to meet the changing interests of students and staff. Topics vary in response to those interests. Students are advised to seek information about the coverage and prerequisites during the registration period.

ECON 399 Individual Reading and Research For Undergraduates (3) Prerequisite: six hours of upper-division economics courses. Repeatable to 6 credits if content differs. By arrangement with individual faculty members. This course is designed for students desiring specialized instruction and guidance in subjects not covered in the course offerings. Before enrollment, the students must secure agreement from an individual faculty member to act as their supervisor. A program of reading, research and evaluation will be worked out between the student and the faculty member.

ECON 402 Macroeconomic Models and Forecasting (3) Prerequisite: ECON 305 or ECON 405. Analysis of the fluctuations in economic activity and the formulation and

use of forecasting models of the economy. Illustrations of computer macro models and forecasting problems.

ECON 407 Advanced Macroeconomics (3) Prerequisite: ECON 305. An in-depth analysis of current issues in macroeconomic theory and policy. Topics covered include 1. alternative perspectives on macroeconomics including monetarism, new classical equilibrium models, rational expectations, and real business cycle models; 2. long term growth, the slowdown in productivity growth, and concerns about U.S. competitiveness; 3. the effectiveness of macroeconomic policy in an open economy; 4. the effects of finance on the real sector.

ECON 410 Comparative Institutional Economics (3) Prerequisite: ECON 306. Determinants of institutional arrangements and the economic consequences of those arrangements for economic growth using transaction costs economics, the new institutional economics, and elementary game theory. Historical emergence of market institutions and nonpredatory governments in Europe and Japan, and the policy successes and failures of less-developed countries today.

ECON 416 Theory of Economic Development (3) Prerequisite: ECON 305 or ECON 405. Credit will be granted for only one of the following: ECON 315 or ECON 416. Economic theory of the developing nations; role of innovation, capital formation, resources, institutions, trade and exchange rates, and governmental policies.

ECON 417 Advanced Microeconomics (3) Prerequisite: ECON 306 and (MATH 220 or MATH 140). Theory of the household and firm, noncooperative game theory, economics of incomplete information and uncertainty, incentives, and adverse selection and market signalling.

ECON 418 Economic Development of Selected Areas (3) Prerequisite: ECON 315 or ECON 416. Institutional characteristics of a specific area are discussed and alternate strategies and policies for development are analyzed.

ECON 422 Quantitative Methods in Economics I (3) Prerequisite: ECON 201; and ECON 203; and (ECON 321 or BMGT 230); or permission of department. Emphasizes the interaction between economic problems and the assumptions employed in statistical theory. Formulation, estimation, and testing of economic models, including single variable and multiple variable regression techniques, theory of identification, and issues relating to inference. Independent work relating the material in the course to an economic problem chosen by the student is required.

ECON 423 Quantitative Methods in Economics II (3) Prerequisite: ECON 422. Interaction between economic problems and specification and estimation of econometric models. Topics include issues of autocorrelation, heteroscedasticity, functional form, simultaneous equation models, and qualitative choice models.

ECON 424 Computer Methods in Economics (3) Prerequisites: ECON 201; and ECON 203; and (ECON 321 or BMGT 230). Computer modelling of economic problems, including household and firm behavior, macroeconomic relationships, statistical models of economy, and simulation models.

ECON 425 Mathematical Economics (3) Prerequisites: ECON 305 or ECON 405, and ECON 306 or ECON 406, and MATH 220 or equivalent. Mathematical developments of theory of household and firm, general equilibrium and welfare economics, market imperfections, and role of information.

ECON 430 Money and Banking (3) Prerequisites: ECON 201 and ECON 203. Credit will be granted for only one of the following: ECON 430 or ECON 431. The structure of financial institutions and their role in the provision of money and near money. Analysis of the Federal Reserve System, the techniques of central banks, and the control of supply of financial assets in stabilization policy. Relationship of money and credit to economic activity and the price level.

ECON 431 Theory of Money, Prices and Economic Activity (3) Prerequisite: ECON 305 or ECON 405. Credit will be granted for only one of the following: ECON 430 or ECON 431. Monetary theory and the role of money, financial institutions and interest rates in macro models. Analysis of money demand and supply and of the Monetarist-Keynesian debate as they affect inflation and stabilization policy.

ECON 440 International Economics (3) Prerequisites: ECON 201 and ECON 203. Credit will be granted for only one of the following: ECON 440 or ECON 441. A description of international trade and the analysis of international transactions, exchange rates, and balance of payments. Analysis of policies of protection, devaluation, and exchange rate stabilization and their consequences.

ECON 441 Theory of International Economics (3) Prerequisite: ECON 305 or ECON 405; and ECON 306 or ECON 406. Credit will be granted for only one of the following: ECON 440 or ECON 441. Theoretical treatment of international trade and international finance. Includes Ricardian and Heckscher-Ohlin theories of comparative advantage, analysis of tariffs and other trade barriers, international factor mobility, balance of payments adjustments, exchange rate determination, and fiscal and monetary policy in an open economy.

ECON 450 Introduction to Public Sector Economics (3) Prerequisite: (ECON 201; and ECON 203) or ECON 205. Credit will be granted for only one of the following: ECON 450 or ECON 454. The role of federal, state, and local governments in meeting public wants. Analysis of theories of taxation, public expenditures, government budgeting, benefit-cost analysis and income redistribution, and their policy applications.

ECON 451 Public Choice and Public Policy (3) Prerequisite: (ECON 201; and ECON 203), or ECON 205. Analysis of collective decision making, economic models of government, program budgeting, and policy implementation; emphasis on models of public choice and institutions which affect decision making.

ECON 454 Theory of Public Finance and Fiscal Federalism (3) Prerequisite: ECON 306 or ECON 406. Credit will be granted for only one of the following: ECON 450 or ECON 454. Study of welfare economics and the theory of public goods, taxation, public expenditures, benefit-cost analysis, and state and local finance. Applications of theory to current policy issues.

ECON 456 Law and Economics (3) Prerequisite: ECON 306. Relationship of the exchange process to the system of institutions and rules that society develops to carry out economic transactions. Topics covered include: Property rights; torts, negligence, and liability; contracts and exchanges; criminal control and enforcement; equity issues in the rule and market environment.

ECON 460 Industrial Organization (3) Prerequisite: ECON 306 or ECON 406. Changing structure of the American economy; price policies in different industrial classifications of monopoly and competition in relation to problems of public policy.

ECON 465 Health Care Economics (3) Prerequisite: ECON 203 or ECON 205. Analysis of health care, the organization of its delivery and financing. Access to care; the role of insurance; regulation of hospitals, physicians, and the drug industry; role of technology; and limits on health care spending.

ECON 470 Theory of Labor Economics (3) Prerequisite: ECON 306. Credit will be granted for only one of the following: ECON 370 or ECON 470. An analytical treatment of theories of labor markets. Marginal productivity theory of labor demand; allocation of time in household labor supply models; theory of human capital; earnings differentials; market structure and the efficiency of labor markets; the role of trade unions; discrimination; and unemployment.

ECON 471 Current Problems in Labor Economics (3) Prerequisite: ECON 470 or permission of department. Emphasis on current policy issues. Topics include: the distribution of income; welfare reform and work incentives; employment and training programs; social insurance programs; unemployment policy; immigration, trade and labor market policy; international labor market comparisons; and the economics of human resource management.

ECON 476 American Living Standards and Poverty (3) Prerequisite: ECON 305 and ECON 321 or permission of department. Also offered as PUAF 730. Post-World War II trends in U.S. living standards and income inequality. Areas studied include: industrial base, productivity, growth demographics, international competitiveness and the structure (and holders) of debt as they affect the level of U.S. income and income inequality.

ECON 482 Economics of the Soviet Union (3) Prerequisite: (ECON 201 and ECON 203) or ECON 205. An analysis of the organization, operating principles and performance of the Soviet economy with attention to the historical and ideological background, planning, resources, industry, agriculture, domestic and foreign trade, finance, labor, and the structure and growth of national income.

ECON 484 The Economy of China (3) Prerequisite: (ECON 201, and ECON 203) or ECON 205. Policies and performances of the Chinese economy since 1949. A survey of modern China's economic history. Emphasizes the strategies and institutional innovations that the Chinese have adopted to overcome the problems of economic development. Some economic controversies raised during the "Cultural Revolution" will be covered in review of the problems and prospects of the present Chinese economy.

ECON 486 The Economics of National Planning (3) Prerequisite: (ECON 201; and ECON 203); or ECON 205. An analysis of the principles and practice of economic planning with special reference to the planning problems of West European countries and the United States.

ECON 490 Survey of Urban Economic Problems and Policies (3) Prerequisites: (ECON 201 and ECON 203) or ECON 205. An introduction to the study of urban economics through the examination of current policy issues. Topics may include suburbanization of jobs and residences, housing and urban renewal, urban transportation, development of new towns, ghetto economic development, problems in services such as education and police.

EDCI—Curriculum and Instruction

EDCI 280 School Service Semester (3) Development of conceptual understanding of the teaching-learning process. Seminar to coordinate on-and off-campus experiences. One hour each week on campus with an arranged six hours each week in schools.

EDCI 288 Special Topics in Teacher Education (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

EDCI 298 Special Problems in Teacher Education (1-6) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

EDCI 300 Curriculum and Instruction in Art Education (3) Prerequisite: admission to Teacher Education Program. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement, and other topics pertinent to art education.

EDCI 301 Teaching Art in the Elementary School (3) For elementary and pre-elementary education majors only. Not open to art education majors. Art methods and materials for elementary schools. Includes laboratory experiences with materials appropriate for elementary schools. Emphasis on emerging areas of art education for the elementary classroom teacher.

EDCI 312 Professional Development Seminar in Early Childhood Education (3) Prerequisite: EDCI 280 or permission of department. For ECE majors only. Affective and integrative functions of teaching young children; planning daily programs; organizing the learning environment; developing the curriculum; clarifying values; guiding behavior; diagnosing and evaluating; and working with parents and other adults.

EDCI 313 Creative Activities and Materials for the Young Child (3) Prerequisite: EDCI 280. Corequisites: EDHD 300; and MUED 450; and EDCI 318; and EDCI 314. Techniques and resources for art, music, play and creative dramatics.

EDCI 314 Teaching Language, Reading, Drama and Literature with Young Children (3) Prerequisite: EDCI 280. Introduction to the teaching of reading in the context of the language arts; beginning reading instruction and utilization of literature, drama, and writing.

EDCI 315 The Young Child in the Social Environment (3) Corequisites: EDCI 317; and EDCI 318. The child's understanding of people, social roles, society and various cultures; communicative skills and ability to develop satisfying relationships with peers and adults. Related techniques, materials and resources included.

EDCI 316 The Teaching of Reading: Early Childhood (3) The fundamentals of developmental reading instruction, including reading readiness, use of experience records, procedures in using basal readers, the improvement of comprehension, teaching reading in all

areas of the curriculum, uses of children's literature, the program in word analysis, and diagnostic techniques.

EDCI 317 The Young Child and the Physical Environment (3) Teaching skills and background knowledge important in guiding the child to learn about the physical environment. The skills of quantification, observation, inference, space-time relationships, and classification.

EDCI 320 Curriculum and Instruction in Secondary Education: Social Studies/ History (3) Prerequisites: EDHD 300; and EDCI 390. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics pertinent to social studies education. Includes emphasis on multi-cultural education.

EDCI 321 Curriculum and Instruction in Secondary Education: Social Studies/ Geography (3) Prerequisites: EDHD 300; and EDCI 390. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement, and topics pertinent to geography education.

EDCI 322 Curriculum and Instruction in Elementary Education: Social Studies (3) Prerequisites: EDCI 397; and EDHD 300. Cumculum, organization and methods of teaching, evaluation of materials, and utilization of environmental resources. Emphasis on multicultural education. Includes laboratory/field experiences.

EDCI 330 Curriculum and Instruction in Secondary Education: Foreign Language (3) Prerequisites: EDHD 300; and EDCI 390; and permission of department. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks, and other instructional materials, measurement, and other topics pertinent to foreign language education.

EDCI 340 Curriculum and Instruction in Secondary Education: English/ Speech/ Theatre (3) Prerequisites: EDHD 300; and EDCI 390. Corequisite: EDCI 447. Objectives, selection, and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement, and other topics.

EDCI 342 Curriculum and Instruction in Elementary Education: Language Arts (3) Prerequisites: EDCI 397; and EDHD 300. Listening, oral communication, functional writing, creative writing, spelling, handwriting, and creative expression. Includes laboratory/field experiences.

EDCI 350 Curriculum and Instruction in Secondary Education: Mathematics (3) Prerequisites: EDHD 300; and EDCI 390. Six semester hours of 400-level mathematics courses required. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics. For pre-service mathematics teachers.

EDCI 352 Curriculum and Instruction in Elementary Education: Mathematics (3) Prerequisites: MATH 210; and MATH 211; and EDCI 397; and EDHD 300. Materials and procedures to help children sense arithmetical meanings and relationships. Development of an understanding of the number system and arithmetical processes. Includes laboratory/field experiences.

EDCI 362 Curriculum and Instruction in Elementary Education: Reading (3) Prerequisites: EDCI 397; and EDHD 300. Fundamentals of developmental reading instruction, including reading readiness, use of experience stories, procedures in using basal readers, the improvement of comprehension, word analysis, and procedures for determining individual needs. Includes laboratory/field experiences.

EDCI 370 Curriculum and Instruction in Secondary Education: Science (3) Prerequisites: EDHD 300; and EDCI 390. For pre-service science teachers. Preparing objectives, planning lessons, selecting and organizing for classroom and laboratory instruction, determining appropriate teaching methods, selecting textbooks and other instructional materials, and measuring and evaluating student achievement. Includes laboratory/field experiences.

EDCI 371 Computers in the Science Classroom and Laboratory (2) Prerequisite: EDCI 370. Corequisites: EDCI 470; and EDCI 471. Senior standing. For EDCI majors only. Fundamentals of microcomputer use in secondary science classrooms and laboratories.

EDCI 372 Curriculum and Instruction in Elementary Education: Science (3) Prerequisites: EDCI 397; and EDHD 300. Objectives, methods, materials and activities for teaching science in the elementary school; emphasis on teaching strategies which help children learn the processes and concepts of science. Includes laboratory/field experiences.

EDCI 380 Curriculum and Instruction: Elementary (3) Focuses on developmental needs at various age levels, with emphasis upon the activities, materials and methods by which educational objectives are attained.

EDCI 381 Schools and Children (3) Role examination of parents and other community members as consumers and participants in schools. Not open for credit to students in teacher preparation programs.

EDCI 385 Computers for Teachers (3) Prerequisite: admission to teacher education. Credit will be granted for only one of the following: EDCI 385, EDCI 487, EDIT 406, EDIT 477, or EDSP 480. A first-level survey of instructional uses of computers, software, and related technology for preservice teachers.

EDCI 390 Principles and Methods of Secondary Education (3) Pre- or corequisite: EDHD 300; or permission of department. Principles and methods of teaching in junior and senior high schools. Instructional problems common to all of the subject fields, considered in relation to the needs and interests of youth, social problems and the central values of society.

EDCI 397 Principles and Methods of Teaching in Elementary Schools (3) Prerequisite: admission to teacher education. For elementary education majors only. Teaching strategies, classroom interactive techniques, and procedures for planning and evaluating instruction in elementary schools. Emphasis on principles of effective instruction, classroom management, and adaptation of instruction for various student populations.

EDCI 401 Student Teaching in Elementary School: Art (4-8) Prerequisite: EDCI 300. Limited to art education majors who have previously applied. Fulfills elementary teaching requirements in K-12 art education program.

EDCI 402 Student Teaching in Secondary Schools: Art (2-8) Prerequisite: EDCI 300.

EDCI 403 Teaching of Art Criticism in Public Schools (3) Introduction to theories of art criticism. Trips to galleries and museums. Open to fine arts majors and students from other disciplines.

EDCI 406 Practicum in Art Education: Two-Dimensional (3) Prerequisite: permission of department. Theory and practical experience in two-dimensional design in various art media; development of teaching procedures and presentation of materials in school settings.

EDCI 407 Practicum in Art Education: Three-Dimensional (3) For pre-art education and art education majors only. A lecture-studio course to develop skills, material resources, and educational strategies for three-dimensional projects in school settings.

EDCI 410 The Child and the Curriculum: Early Childhood (3) Relationship of the nursery school curriculum to child growth and development. Recent trends in curriculum organization; the effect of environment on learning; readiness to learn; and adapting curriculum content and methods to maturity levels of children. Primarily for in-service teachers, nursery school through grade 3.

EDCI 411 Student Teaching: Preschool (4) For EDCI majors only.

EDCI 412 Student Teaching: Kindergarten (4) For EDCI majors only.

EDCI 413 Student Teaching: Primary Grades (8) For EDCI majors only.

EDCI 416 Mainstreaming in Early Childhood Educational Settings (3) Theoretical bases and applied practices for integrating handicapped children into regular early childhood programs.

EDCI 420 Student Teaching Seminar in Secondary Education: Social Studies (3) Corequisite: EDCI 421 or EDCI 422. An analysis of teaching theory, strategies, and techniques in the student teaching experience.

EDCI 421 Student Teaching in Secondary Schools: Social Studies/History (12) Prerequisite: EDCI 320. Corequisite: EDCI 420.

EDCI 422 Student Teaching in Secondary Schools: Social Studies/Geography (12) Prerequisite: EDCI 321. Corequisite: EDCI 420.

EDCI 423 Social Studies in Early Childhood Education (3) Curriculum, organization and methods of teaching, evaluation of materials and utilization of environmental resources. Emphasis on multicultural education. Primarily for in-service teachers, nursery school through grade 3.

EDCI 424 Social Studies in the Elementary School (3) Curriculum, organization and methods of teaching, evaluation of materials and utilization of environmental resources. Emphasis on multicultural education. Primarily for in-service teachers, grades 1-6.

EDCI 425 Social Studies and Multicultural Education (3) Seminar in general social science principles applicable to multicultural education. Cultural experiences arranged for each participant.

EDCI 426 Methods of Teaching Social Studies in Secondary Schools (3) Prerequisites: EDHD 300; and EDCI 390. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics pertinent to social studies education. Includes emphasis on multicultural education. For in-service teachers.

EDCI 427 Teaching Writing to Limited English Proficiency Students (3) Prerequisites: (EDCI 330 and EDCI 434) or permission of department. Junior standing. Research, theory, and practice in the teaching of writing to limited English proficiency students for teachers and prospective teachers.

EDCI 430 Student Teaching Seminar in Secondary Education: Foreign Language (3) Prerequisite: EDCI 330. Corequisite: EDCI 431. An analysis of teaching theory, strategies and techniques in the student teaching experience.

EDCI 431 Student Teaching in Secondary Schools: Foreign Language (12) Prerequisite: EDCI 330. Corequisite: EDCI 430.

EDCI 432 Foreign Language Methods in the Elementary School (3) Prerequisite: permission of department. Methods and techniques for developmental approach to the teaching of modern foreign languages in elementary schools. Development of oral-aural skills in language development.

EDCI 433 Introduction to Foreign Language Methods (3) Prerequisites: EDHD 300; and EDCI 390; or permission of department. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics pertinent to foreign language education. For in-service teachers.

EDCI 434 Methods of Teaching English to Speakers of Other Languages (3) Methods for teaching listening, speaking, reading and writing techniques and a review of research findings.

EDCI 435 Teaching Reading in a Second Language (3) Prerequisite: permission of department. Analysis of selected theories and practices in first language reading applied to second language teaching/learning, diagnostic and prescriptive techniques and analysis of the student's cultural background as a factor in evaluating reading achievement in the second language.

EDCI 436 Teaching for Cross-Cultural Communication (3) The techniques and content for teaching culture in foreign language classes and English as a Second Language (ESL) classes. Research and evaluation of selected aspects of a culture as basis for creating teaching materials.

EDCI 437 Bilingual-Bicultural Education (3) Prerequisite: permission of department. Analysis of bilingual-bicultural education in the U.S. and abroad with emphasis on TESOL. Methods of teaching, goals, instructional materials and mainstreaming of bilingual students.

EDCI 438 Field Experience in TESOL (3) Prerequisites: EDCI 434 or equivalent, and permission of depart-

ment. Systematic observations, tutoring and teaching in a TESOL field setting.

EDCI 440 Student Teaching Seminar in Secondary Education: English, Speech, Theatre (1) Prerequisite: EDCI 340. Corequisite: EDCI 441. An analysis of teaching theory, strategies and techniques in relation to the student teaching experience

EDCI 441 Student Teaching in Secondary Schools: English (6-12) Prerequisite: EDCI 340 or EDCI 442 or EDCI 448. Corequisite: EDCI 440.

EDCI 442 Student Teaching in Secondary Schools: Speech (6-12) Prerequisite: EDCI 340. Corequisite: EDCI 440.

EDCI 443 Literature for Children and Youth (3) For elementary education and pre-elementary education majors only. Analysis of literary materials for children and youth. Timeless and ageless books, and outstanding examples of contemporary publishing. Evaluation of the contributions of individual authors, illustrators and children's book awards.

EDCI 444 Language Arts in Early Childhood Education (3) Teaching of spelling, handwriting, oral and written expression and creative expression. Primarily for in-service teachers, nursery school through grade 3.

EDCI 445 Language Arts in the Elementary School (3) Teaching of spelling, handwriting, oral and written expression and creative expression. Primarily for in-service teachers, grades 1-6.

EDCI 446 Methods of Teaching English, Speech, Theatre in Secondary Schools (3) Prerequisites: EDHD 300; and EDCI 390; or permission of department. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement and topics pertinent to English, speech, and drama education. For in-service teachers.

EDCI 447 Field Experience in English, Speech, Theatre Teaching (1) Corequisite: EDCI 340. Practical experience as an aide to a regular English, Speech or Drama teacher; assigned responsibilities and participation in a variety of teaching/learning activities.

EDCI 448 Student Teaching in Secondary Schools: Theatre (6-12) Prerequisite: EDCI 340. Persons student teaching in theatre only should register for 12 credits. Persons in the Theatre and English Education Program should register for 6 credits of EDCI 441 and 6 credits of EDCI 448.

EDCI 450 Student Teaching Seminar in Secondary Education: Mathematics (3) Corequisite: EDCI 451. An analysis of teaching theory, strategies and techniques in the student teaching experience.

EDCI 451 Student Teaching in Secondary Schools: Mathematics (12) Prerequisite: EDCI 350.

EDCI 452 Mathematics in Early Childhood Education (3) Prerequisite: MATH 210 or equivalent. Emphasis on materials and procedures which help pupils sense arithmetic meanings and relationships. Primarily for in-service teachers, nursery school through grade 3.

EDCI 453 Mathematics in the Elementary School (3) Prerequisite: MATH 210 or equivalent. Emphasis on materials and procedures which help pupils sense arithmetic meanings and relationships. Primarily for in-service teachers, grades 1-6.

EDCI 455 Methods of Teaching Mathematics in Secondary Schools (3) Prerequisites: EDHD 300; and EDCI 390; and 2 semesters of calculus. Objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement, and topics pertinent to mathematics education.

EDCI 456 Teaching Mathematics to the Educationally Handicapped (3) Prerequisites: (EDSP 331; and EDSP 332; and EDSP 333; and EDSP 443; and MATH 210) or permission of department. Development of skills in diagnosing and identifying learning disabilities in mathematics and planning for individualized instruction. Clinic participation required.

EDCI 457 Teaching Secondary Students with Difficulties in Learning Mathematics (3) Corequisite: EDCI 390 or permission of department. Diagnosis, prescription and implementation of instruction for less able secondary school mathematics students. Participation in a clinical experience.

EDCI 461 Reading in Early Childhood Education (3) Fundamentals of developmental reading instruction, including reading readiness, use of experience stories, procedures in using basal readers, the improvement of comprehension, word analysis, and procedures for determining individual needs. Primarily for in-service teachers, nursery school through grade 3.

EDCI 462 Reading in the Elementary School (3) Fundamentals of developmental reading instruction, including reading readiness, use of experience stories, procedures in using basal readers, the improvement of comprehension, word analysis, and procedures for determining individual needs. Primarily for in-service teachers, grades 1-8.

EDCI 463 The Teaching of Reading in the Secondary School (3) The fundamentals of secondary reading instruction, including emphasis on content reading instruction.

EDCI 464 Clinical Practices in Reading Diagnosis and Instruction (3) Prerequisite: EDCI 362 or EDCI 463. A laboratory course in which each student has one or more pupils for analysis and instruction. At least one class meeting per week to diagnose individual cases and to plan instruction.

EDCI 465 Language, Culture, and Education (3) Prerequisite: LING 200 or permission of department. Survey of sociolinguistic and psycholinguistic perspectives for the study of language and education; examines pragmatics, speech act theory, and dimensions of language variation (dialects, codes, and registers); implications for educational research and instructional practice.

EDCI 466 Literature for Adolescents (3) Reading and analysis of fiction and nonfiction; methods for critically assessing quality and appeal; current theory and methods of instruction; research on response to literature; curriculum design and selection of books.

EDCI 467 Teaching Writing (3) Sources and procedures for developing curriculum objectives and materials for teaching written composition; prewriting, composing, and revision procedures; contemporary directions in rhetorical theory; survey of research on composition instruction.

EDCI 470 Student Teaching Seminar in Secondary Education: Science (1) Prerequisite: EDCI 370. Corequisites: EDCI 371; and EDCI 471. Senior standing. For EDCI majors only. Analysis of teaching theory, strategies and techniques in student teaching.

EDCI 471 Student Teaching in Secondary Schools: Science (12) Prerequisite: EDCI 370. For EDCI majors only.

EDCI 472 Methods of Teaching Science in Secondary Schools (3) Prerequisites: EDHD 300; and EDCI 390; and permission of department. Methods for classroom and laboratory instruction, determining appropriate teaching methods, selecting instructional materials, evaluating student achievement. Includes lab and field experience. For in-service teachers.

EDCI 473 Environmental Education (3) Two hours of lecture and three hours of laboratory per week. An interdisciplinary course covering the literature, techniques and strategies of environmental education.

EDCI 474 Science in Early Childhood Education (3) Objectives, methods, materials and activities for teaching science in the elementary school. Primarily for in-service teachers, nursery school through grade 3.

EDCI 475 Science in the Elementary School (3) Objectives, methods, materials, and activities for teaching science in the elementary school. Primarily for in-service teachers, grades 1-6.

EDCI 476 Teaching Ecology and Natural History (3) An introduction to the teaching of natural history in the classroom and in the field. Ecological principles; resources and instructional materials; curricular materials. Primarily for teachers, park naturalists, and outdoor educators.

EDCI 480 The Child and the Curriculum: Elementary (3) Relationship of the school curriculum, grades 1-6, to child growth and development. Recent trends in curriculum organization; the effect of environment on learning; readiness to learn; and adapting curriculum content and methods to maturity levels of children. Primarily for in-service teachers, grades 1-6.

EDCI 481 Student Teaching: Elementary (12) For EDCI majors only

EDCI 484 Student Teaching in Elementary School: Music (4-6) For EDCI majors only. Fulfills elementary teaching requirements in K-12 music education programs.

EDCI 485 Student Teaching in Elementary School: Physical Education (4-8) For EDCI majors only. Fulfills elementary teaching requirements in K-12 physical education programs.

EDCI 487 Introduction to Computers in Instructional Settings (3) Prerequisite: six hours of education or permission of department. A first-level survey of instructional uses of computers, software, and related technology especially for in-service teachers.

EDCI 488 Selected Topics in Teacher Education (1-3) Prerequisite: EDCI major or permission of department. Repeatable to 6 credits if content differs.

EDCI 489 Field Experiences in Education (1-4) Prerequisite: permission of department. Corequisite: EDCI 497. Repeatable to 4 credits.

EDCI 491 Student Teaching in Secondary Schools: Health (12) For EDCI majors only.

EDCI 494 Student Teaching in Secondary Schools: Music (2-8) For EDCI majors only.

EDCI 495 Student Teaching in Secondary Schools: Physical Education (2-8) For EDCI majors only.

EDCI 497 The Study of Teaching (3) Prerequisite: EDCI 481. Corequisite: EDCI 489. Identification and examination of learner and teacher outcome variables related to teaching systems, methods, and processes. Methods of conducting classroom research.

EDCI 498 Special Problems in Teacher Education (1-6) Prerequisite: permission of department. For EDCI majors only. Repeatable to 6 credits. Individual study of approved problems.

EDCI 499 Workshops, Clinics, and Institutes (1-6) Repeatable to 6 credits. The following types of educational enterprise may be scheduled under this course heading: workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.

EDCP — Education Counseling and Personnel Services

EDCP 108 College and Career Advancement: Concepts and Skills (1) Repeatable to 3 credits if content differs. Knowledge and skills designed to enhance college as a learning experience or preparation for life.

EDCP 310 Peer Counseling Theory and Skills (3) The theories and skills of peer helping relationships. Counseling theories and skills at a level appropriate for students seeking basic level training for use in peer counseling settings.

EDCP 325 Substance Use and Abuse in American Society (3) Incidence, etiology, effects and management of substance use and abuse from perspective of the individual, the family, and society.

EDCP 410 Introduction to Counseling and Personnel Services (3) Overview of counselor functions and skills that lead to effective helping.

EDCP 411 Principles of Mental Health (3) Prerequisite: nine semester hours in the behavioral sciences or

permission of department. Mechanisms involved with personal adjustment, coping skills, and the behaviors that lead to maladjustment.

EDCP 413 Behavior Modification (3) Knowledge and techniques of intervention in a variety of social situations, including contingency contracting and time out will be acquired.

EDCP 416 Theories of Counseling (3) An overview and comparison of the major theories of counseling, including an appraisal of their utility and empirical support.

EDCP 417 Group Dynamics and Leadership (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: permission of department. The nature and property of groups, interaction analysis, developmental phases, leadership dynamics and styles, roles of members and interpersonal communications. Laboratory involves experimental based learning.

EDCP 420 Education and Racism (3) Strategy development for counselors and educators to deal with problems of racism.

EDCP 460 Introduction to Rehabilitation Counseling (3) Survey of principles and practices involved in the vocational rehabilitation of persons with disabilities.

EDCP 461 Psycho-Social Aspects of Disability (3) Theory and research concerning disability, with emphasis on crisis theory, loss and mourning, handicapped as a deviant group, sexuality and functional loss, attitude formation, dying process and coping. Implications for counseling and the rehabilitation process.

EDCP 462 The Disabled Person in American Society (3) Critical examination of the history of legislation and analysis of current policies toward severely physically and mentally disabled persons.

EDCP 470 Introduction to Student Personnel (3) Prerequisite: permission of department. A systematic analysis of research and theoretical literature on a variety of major problems in the organization and administration of student personnel services in higher education. Included will be discussion of such topics as the student personnel philosophy in education, counseling services, discipline, housing, student activities, financial aid, health, remedial services, etc.

EDCP 489 Field Experiences in Counseling and Personnel Services (1-4) Prerequisite: permission of department. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDCP 498 Special Problems in Counseling and Personnel Services (1-3) Prerequisite: permission of department. Available only to major students who have formal plans for individual study of approved problems.

EDCP 499 Workshops, Clinics, Institutes (1-6) Repeatable to 6 credits. The following type of educational enterprise may be scheduled under this course heading: workshops conducted by the Department of Counseling and Personnel Services (or developed cooperatively with other departments, colleges and universities) and not otherwise covered in the present course listing; clinical experiences in counseling and testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups.

EDHD — Education, Human Development

EDHD 230 Human Development and Societal Institutions (3) Credit will be granted for only one of the following: EDHD 230 or EDHD 330. Formerly EDHD 330. Development of the individual in the context of relationships with the formal and informal institutions of society. An examination of various aspects of development from the broad perspective of the social sciences.

EDHD 300 Human Development and Learning (6) Prerequisite: admission to teacher education program. Major concepts and theories of human development and learning and their implications for the educational process. One half day a week in school to observe student behavior, participate in classroom activities, and attend seminars on school topics. (Separate sections for early childhood, elementary, and secondary teacher candidates.)

EDHD 306 Study of Human Behavior (3) The scientific principles of human behavior, development, and adjustment. Field work: observation, recording, and analysis of the behavior of an individual. Does not satisfy requirements of professional teacher education program.

EDHD 319 Selected Topics in Human Development (3) Repeatable to 6 credits if content differs. Selected topics in human development in relation to contemporary culture.

EDHD 320 Human Development through the Lifespan (3) Central concepts related to parameters of human development, individual and social, which arise throughout the various stages of the lifespan. Continuity and change within the developing individual.

EDHD 340 Human Development Aspects of the Helping Relationship (3) Development of skills and theoretical knowledge relevant to the human services. Relating, communicating, and problem-solving with others. In-class training activities and field experiences for acquiring interpersonal competence.

EDHD 350 Human Development Factors in Personal Development (3) Personality dynamics including self-study and group experiences which contribute to individual development and insight. Emphasis on factors which enhance optimal personal growth.

EDHD 400 Introduction to Gerontology (3) Multidisciplinary survey of the processes of aging. Physiological changes, cultural forces, and self-processes that bear on quality of life in later years. Field study of programs, institutions for elderly, individual elders, their families and care providers.

EDHD 411 Child Growth and Development (3) Theoretical approaches to and empirical studies of physical, psychological and social development from conception to puberty. Implications for home, school and community.

EDHD 413 Adolescent Development (3) Adolescent development, including special problems encountered in contemporary culture. Observational component and individual case study. Does not satisfy requirement for professional teacher education program.

EDHD 416 Scientific Concepts in Human Development (3) Guided reading and observation of students through the school year. Impact of family, school, society, and peer group on individual. Analysis of field data in terms of behavioral patterns.

EDHD 417 Laboratory in Behavior Analysis (3) Prerequisite: EDHD 416. Continuation of analysis of field observations; emphasis on cognitive processes, motivation, self-concept, attitudes and values.

EDHD 419 Human Development and Learning in School Settings (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Advanced study of human development and learning in different phases of school program over a period of time.

EDHD 420 Cognitive Development and Learning (3) Prerequisite: EDHD 300 or EDHD 320 or EDHD 411 or PSYC 355 or PSYC 341 or permission of department. Current developmental theories of cognitive processes such as language, memory, and intelligence and how differences in cognitive level (infancy through adolescence) mediate learning of educational subject matters.

EDHD 445 Guidance of Young Children (3) Prerequisite: PSYC 100 or EDHD 306 or permission of department. Practical aspects for helping and working with children, drawing on research, clinical studies, and observation. Implications for day care and other public issues.

EDHD 460 Educational Psychology (3) Prerequisite: PSYC 100 or EDHD 306 or permission of department. Application of psychology to learning processes and theories. Individual differences, measurement, motivation, emotions, intelligence, attitudes, problem solving, thinking and communicating in educational settings. (May not be substituted for EDHD 300 by students in professional teacher education programs.)

EDHD 489 Field Experiences in Education (1-4) Prerequisite: permission of department. Repeatable to 4 credits. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDHD 498 Special Problems in Education (1-3) Prerequisite: permission of department. Available only to students who have definite plans for individual study of approved problems.

EDHD 499 Workshops, Clinics, and Institutes (1-6) Repeatable to 6 credits. The following type of educational enterprise may be scheduled under this course heading: workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.

EDIT— Industrial, Technological and Occupational Education

EDIT 101 Mechanical Drawing I (2) Four hours of laboratory per week. An introduction to orthographic multi-view and isometric projection. The visualization and making of a multi-view drawing. Auxiliary views, sectional views, dimensioning, conventional representation and single stroke letters.

EDIT 102 Fundamentals of Woodworking (3) Two hours of lecture and four hours of laboratory per week. An orientation into the woodworking industry, materials, products and processes; provides skill development in the care and use of hand and power tools.

EDIT 106 Teaching Creative Construction Activities I (3) Two hours of lecture and four hours of laboratory per week. Introduction to ceramics, graphics, metals and woods as construction activity materials utilized by multi-age groups in a variety of settings.

EDIT 110 Teaching Creative Construction Activities II (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: EDIT 106. A continuation of EDIT 106. Study of basic phenomena of industry, particularly those which apply to the manufacture of common products, housing, transportation and communication.

EDIT 112 Technical Calculations (3) Developing an understanding and applied knowledge of the mathematical concepts related to the various aspects of industrial education: algebra, geometry, trigonometry, and general mathematics.

EDIT 115 Intermediate Typewriting (2) Four hours of laboratory per week. Prerequisite: minimum grade of C in EDIT 114 or permission of department. Theory and practice for improving speed and accuracy and an introduction to office production typewriting.

EDIT 116 Principles of Shorthand I (3) Six hours of laboratory per week. Prerequisite: EDIT 114. Development of the theory and principles of shorthand.

EDIT 117 Principles of Shorthand II (3) Six hours of laboratory per week. Theory and practice for improving mastery of dictation and transcription.

EDIT 121 Mechanical Drawing II (2) Four hours of laboratory per week. Prerequisite: EDIT 101. Working drawings, machine design, pattern layouts, tracing and reproduction; detailings and assemblies.

EDIT 127 Fundamentals of Electricity Electronics (3) Two hours of lecture and four hours of laboratory per week. Introduction to electricity-electronics with emphasis on electrical circuits and wiring, the measurement of electrical energy, the theory of motors and generators and an introduction to transistors and power supplies.

EDIT 160 Design Illustrating I (3) Two hours of lecture and four hours of laboratory per week. Intended for advertising, interior, landscape design and horticulture majors. The use of instruments, equipment, and materials, lettering; line technique; geometric construction; and projection theory. Pictorial representation, particularly isometric, oblique, and one and two point perspective.

EDIT 202 Machine Woodworking (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: EDIT 102 or equivalent. The development of comprehensive knowledge of machine woodworking with emphasis on mass production practices, specialty cuts, laminating, maintenance, and consumer understanding.

EDIT 207 Bases For Curriculum Decision in Home Economics (3) Exploration of decisions about priorities in home economics curricula based on the needs of society, the individual, and the structure of the home economics program. The roles of the secondary home economics teacher. Includes observations in area schools.

EDIT 210 Foundry (1) Two hours of laboratory per week. Bench and floor molding and elementary core making. Theory and principles covering foundry materials, tools and appliances.

EDIT 214 Office Typewriting Problems (2) Four hours of laboratory per week. Prerequisite: minimum grade of C in EDIT 115. Development of a higher degree of accuracy and speed. The advanced techniques of typewriting with a special emphasis on production.

EDIT 215 Survey of Office Machines (3) Development of skill through actual use and demonstration of various types of office business machines, their capacities and special functions.

EDIT 216 Advanced Shorthand and Transcription (3) Six hours of laboratory per week. Prerequisite: minimum grade of C in EDIT 115. Emphasis on vocabulary development and new matter dictation for sustained speed at the highest level possible under varying conditions. Transcription under timed conditions with emphasis on production involving quantity and quality.

EDIT 223 Arc and Gas Welding (1) Two hours of laboratory per week. The development of functional knowledge of the principles and use of electric and acetylene welding. Practical work in the construction of various projects using welded joints. The use and care of equipment, types of joints, methods, importance of processes in industry and safety consideration.

EDIT 224 Organized and Supervised Work Experiences I (3) For industrial technology majors only. Opportunities for first-hand experiences with business and industry. Students are responsible for obtaining their own employment, with the coordinator advising them about job opportunities with optimum learning value. The nature of the work experience desired is outlined at the outset of employment and then evaluations made by the student and the coordinator are based upon the planned experiences. The minimum time is 240 work hours. The work experience must be served through continuous employment in a single establishment.

EDIT 226 Fundamental Metalworking Processes (3) Two hours of lecture and four hours of laboratory per week. Introduction to the technology of metalworking. Experience operating metals laboratory equipment including an intensive study of the processes of manufacture.

EDIT 227 Applications of Electronics (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: EDIT 127 or equivalent. An intermediate course providing more extensive knowledge in electricity-electronics including principles of the transmission and reception of radio waves, applications of transistors and other semiconductors and an introduction to industrial electronics.

EDIT 231 Mechanical Drawing III (2) Four hours of laboratory per week. Prerequisite: EDIT 121. A continuation of EDIT 121. The reading of prints representative of a variety of industries. Advanced working drawings, machine design, pattern layouts and utilization of computer assisted drawing.

EDIT 232 Fundamentals of Automotive Technology (3) Two hours of lecture and four hours of laboratory per week. Designed for non-industrial education majors interested in learning the theory and practical operation of the automobile. Mechanical, lubrication, cooling, fuel and electrical systems.

EDIT 233 Fundamentals of Power Technology (3) Two hours of lecture and four hours of laboratory per week. Introduction to power generation, control, and transmission. Emphasis on efficiency of energy converters and use of new and future energy sources, e.g., solar, fuel cell. Laboratory experience in testing and evaluating various energy converters.

EDIT 234 Graphic Communications (3) Two hours of lecture and four hours of laboratory per week. Graphic reproduction processes and related areas used to communicate. Offset, letterpress, screen, gravure, engraving flexographic, and electrostatic duplication; and relevant history, safety, layout and design, composition, photo conversion, image carriers, image transfer, finishing, binding, paper and ink.

EDIT 241 Architectural Drawing (2) Four hours of laboratory per week. Prerequisite: EDIT 101 or equivalent. Practical experience in the design and planning of houses and other buildings. Working drawings, specifications, blue-prints, and duplication. Includes computer-assisted design and drawing.

EDIT 262 Basic Metal Machining (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: EDIT 101 or equivalent. Applications of basic metal cutting operations in mass production including work planning, properties of metals and tool materials, conventional metal machining processes and precision measurements.

EDIT 270 Field Experiences (3) Two-hour seminar and field placement for one-half day per week. Introduction to the teaching and learning processes. Career decision information and activities.

EDIT 273 Practicum in Ceramics (3) A lecture-studio course designed to introduce the use of clay and ceramics in a wide variety of educational settings.

EDIT 291 Introduction to Plastics Technology (3) Two hours of lecture and four hours of laboratory per week. An overview of the plastics industry including properties of plastics, major polymers of the plastics industry and basic molding processes.

EDIT 298 Special Problems in Education (1-6) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Available only to freshmen and sophomore majors who have definite plans for individual study of approved problems relative to their preparation for teaching. Credit according to extent of work.

EDIT 302 Woodworking Technology (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: EDIT 102 or equivalent. A working knowledge of contemporary woodworking technology, including testing and macroscopic identification of wood. Opportunity for specialized research of the woodworking industry.

EDIT 304 Administrative Secretarial Procedures (3) The nature of office work, the secretary's function in communication, inter-company and public relations, handling records, supplies and equipment; and direction of office forms and procedures in relation to correspondence, mailing, receiving callers, telephoning, handling conferences, and securing business information. Business etiquette and ethics.

EDIT 305 Secretarial Office Practice (3) Seven hours of laboratory per week. Laboratory and office experience. A minimum of 90 hours experience under supervision is required. In addition, each student will prepare a written report on an original problem previously approved.

EDIT 306 General Shop (3) Organization and administration of a secondary school technical laboratory. Skill and knowledge-developing activities for a variety of laboratories.

EDIT 311 Laboratory Practicum in Industrial Arts Education (3) Six hours of laboratory per week. Prerequisite: permission of department. 18 semester hours of laboratory work and drawing required. The development of instructional materials and the refinement of instructional methods pertinent to the teaching of industrial arts at the secondary school level.

EDIT 324 Organized and Supervised Work Experiences II (3) For industrial technology students only. Work experience. Continuation of EDIT 224.

EDIT 327 Electronic Semi-Conductor Applications (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: EDIT 127 or equivalent. An advanced course providing more extensive knowledge in electricity or electronics including the advanced theory and applications of semi-conductors and the principles of the storage and transmission of electronically coded information.

EDIT 332 Advanced Procedures in Automotive Technology (3) Two hours of lecture and six hours of laboratory per week. Prerequisite: EDIT 232 or equivalent. Designed for students who have a background in engine systems and wish to broaden their knowledge. Emission control, electrical systems, and diagnostic problem solving.

EDIT 334 Photographic and Electronic Graphic Communications (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: EDIT 234 or equivalent. An intermediate course on contemporary processes relevant to graphic reproduction. Photographic, electronic and computer assisted composition techniques, contract photoprinting, line and halftone process photography, microphotography, photo screen printing and photo offset lithography.

EDIT 335 Continuous Tone Photographic Technology (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: EDIT 234 or permission of department. Theory and techniques pertaining to black-and-white and color light sensitive materials. Emphasis on history, cameras, exposure techniques, composition, illumination film processing, contact printing, enlarging, darkroom controls and finishing as related to graphic communications.

EDIT 340 Methods of Teaching Office Skills (3) An examination and evaluation of the aims, methods, and course contents of each of the office skill subjects offered in the high school curriculum.

EDIT 341–344 Curriculum, Instruction and Observation courses. Offered in separate courses for the various subject matter areas. The objectives, selection and organization of subject matter, appropriate methods, lesson plans, textbooks and other instructional materials, measurement, and other topics pertinent to the particular subject matter area are treated. Students must reserve day for observation in public schools.

EDIT 341 Curriculum, Instruction, and Observation: Business Education(3)

EDIT 342 Curriculum, Instruction, and Observation: Home Economics Education (3)

EDIT 344 Curriculum, Instruction, and Observation: Industrial Arts Education(3)

EDIT 350 Methods of Teaching: Trades and Industrial Education (3) Intended for vocational and occupational teachers. The identification and analysis of factors essential to helping others learn; types of teaching situations and techniques; measuring results and grading student progress in laboratory and related technical subjects.

EDIT 353 Fire Safety Codes and Standards (3) The legal response to the problems of fire safety. Legal issues surrounding the implementation and enforcement of codes with application to industry.

EDIT 360 Industrial Production Technology (3) Prerequisite: EDIT 262 or permission of department. Principles of industrial and laboratory organization. Economics of production, capital equipment, labor costs, cost of materials. Industrial plant siting, environmental considerations, plant layout and design. Engineering decisions for production, methods analysis, value analysis, quality control. Industrial relations.

EDIT 362 Advanced Metal Machining Processes (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: EDIT 262 or equivalent. Experience in complex metal cutting operations; special heat treating processes; super precision measurements; electrical, chemical and ultrasonic metal removal, and high energy rate forming with experimentation in specialized machining operations.

EDIT 381 Inorganic Nonmetallic Materials (3) Two hours of lecture and four hours of laboratory per week. Introduction to inorganic, nonmetallic materials which are applied in the manufacturing and construction industries.

EDIT 391 Plastics Processing Fundamentals (3) Prerequisite: EDIT 291 or permission of department. Lecture and laboratory. Experience with plastics production equipment including an intensive study of thermoplastic and thermosetting resins and their fabrication processes.

EDIT 399 Trade Competence (1-20) An examination to determine and evaluate the trade competence of students pursuing a degree in the field of vocational-technical education.

EDIT 400 Technology Activities For the Elementary School (3) Experience in the development and use of technology and career education instructional materials for construction activities in an interdisciplinary approach to elementary school education.

EDIT 401 Essentials of Design (2) Four hours of laboratory per week. Prerequisite: EDIT 101. A study of the basic principles of design and practice with application to the construction of laboratory projects.

EDIT 402 Methods and Materials in Teaching Bookkeeping and Related Subjects (3) Problems and procedures in the mastery of bookkeeping and related office knowledge and skills. Consideration of materials and teaching procedures.

EDIT 403 Problems in Teaching Office Skills (3) Problems in development of occupational competency, achievement tests, standards of achievement, instructional materials, transcription, and the integration of office skills.

EDIT 404 Basic Business Education in the Secondary Schools (3) Subject matter selection; methods of organization; and presenting business principles, knowledge and practices.

EDIT 405 Business Communications (3) The fundamental principles of effective written communication. Word usage, grammar, punctuation, principles and procedures for writing business letters, and formal research reports.

EDIT 406 Word Processing (3) An introduction to the word processing field with emphasis on word processing theory and concepts including hands-on equipment training. Management of office personnel, procedures, and equipment; the incorporation of word processing into the school curriculum, the automated office of the future and career opportunities.

EDIT 410 Administration and Program Development for Industrial Arts and Vocational Education (3) Principles and practices of program development and supervision with reference to the role of the departmental chairperson in vocational, technical, and industrial arts programs at the secondary and post-secondary levels.

EDIT 412 Management of Physical Facilities in Industrial Arts and Vocational Education (3) Principles, practices, and theory related to the role of the departmental chairperson charged with the management of the physical facilities in vocational, technical, and industrial arts laboratories.

EDIT 414 Organization and Coordination of Cooperative Education Programs (3) The organization of a cooperative distributive education program; the development of an effective cooperative relationship between coordinator and training sponsor; the selection, orientation, and training of sponsors; analysis of training opportunities, reports and records; the evaluation and selection of students for part-time cooperative work assignments; and the evaluation of the program.

EDIT 415 Financial and Economic Education I (3) Problems of teaching courses in personal finance and economics in the public schools, including materials and resources.

EDIT 416 Financial and Economic Education II (3) Continuation of EDIT 415.

EDIT 421 Industrial Arts in Special Education (3) One hour of lecture and four hours of laboratory per week. Prerequisites: (EDSP 470; and EDSP 471) or permission of department. Experiences of a technical and theoretical nature in industrial processes applicable for classroom use. Emphasis on individual research in the specific area of major interest in special education.

EDIT 422 Student Teaching: Industrial Arts Education (2-12)

EDIT 425 Analysis of Industrial Training Programs I (3) An overview of the function of industrial training, including methods of instruction, types of programs and their organization, objectives, and evaluation.

EDIT 426 Analysis of Industrial Training Programs II (3) Prerequisite: EDIT 425. Continuation of EDIT 425. Studies of training programs in a variety of industries, including plant program visitation, training program development, and analysis of industrial training research.

EDIT 427 Experimental Electronics (2) Six hours of laboratory per week. Student investigation of an area of electronics of particular interest or usefulness at a depth appropriate for student-based objectives relating to one or more of the following: digital circuitry, communication, energy conversion, test equipment utilization, analog circuitry.

EDIT 432 Student Teaching: Business Education (2-12)

EDIT 433 Advanced Topics in Power Technology (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: EDIT 233 or equivalent. The development of a competency in building and evaluating the performance of energy transmission, control and converter systems. Methane digestors, solar collectors, electric motors, steam turbines, and fluid power systems.

EDIT 434 Color Reproduction in Graphic Communications (3) Two hours of lecture and four hours of laboratory per week. Prerequisites: (EDIT 234; and EDIT 334; and EDIT 335) or equivalent. An advanced course in the theory and processes of color graphic reproduction. Continuous tone color photography, flat color preparation, process color separations and the reproduction of a multi-color product on a semi-automatic or automatic printing press.

EDIT 435 Curriculum Development in Home Economics (3) An analysis of curriculum development including the tools for planning, managing, and evaluating the teaching/learning environment of conceptual curriculum design.

EDIT 436 Analysis of Child Development Laboratory Practices (3) Prerequisite: FMCD 332 or EDHD 411. Integration of child development theories with laboratory practices; observation and participation in a secondary school child development laboratory arranged to alternate with class meetings.

EDIT 440 Industrial Hygiene (3) Introduction to the concept of industrial hygiene and environmental health. Evaluation techniques, instrumentation for identification of problems; design parameters for achieving control over environmental epidemiological and toxicological hazards.

EDIT 442 Student Teaching: Home Economics Education (2-12)

EDIT 443 Industrial Safety I (3) The history and development of effective safety programs in modern industry including causes, effects and values of industrial safety education including fire prevention and hazard controls.

EDIT 444 Industrial Safety II (3) Study of exemplary safety practices through conference discussions, group demonstration, and organized plant visits to selected industrial situations. Methods of fire precautions and safety practices. Evaluative criteria in safety programs.

EDIT 445 Systems Safety Analysis (3) The development of systems safety, a review of probability concepts and the application of systems technique to industrial safety problems. Hazard mode and effect, fault free analysis and human factors considerations.

EDIT 450 Training Aids Development (3) Study of instructional materials, sources and applications; emphasis on principles for making aids useful to laboratory teachers. Actual construction and application of materials will be required.

EDIT 451 Research and Experimentation in Industrial Arts (3) A laboratory-seminar course designed to develop persons capable of planning, directing and evaluating effective research and experimentation procedures with the materials, products and processes of industry.

EDIT 453 Fire Safety Research and Transfer (3) The technological transfer of scientific findings to private sector fire safety. Review of research applicable to the adequacy and reliability of fire safety in industry.

EDIT 454 Private Fire Protection Analysis I (3) Risk analysis, life safety and property conservation from fire in industrial properties and complexes. Emphasis on a systems approach for implementing private fire protection.

EDIT 455 Private Fire Protection Analysis II (3) Prerequisite: EDIT 448. Internal property detection and fire suppression systems that can mitigate a fire in the incipient stage. Review of systems, with emphasis on the performance objectives of preventing, controlling, and extinguishing fires.

EDIT 457 Tests and Measurements (3) The construction of objective tests for occupational and vocational subjects. Use of measures in domains of learning and examination of test analysis techniques.

EDIT 460 Design Illustrating II (2) Four hours of laboratory per week. Prerequisite: EDIT 160. Advanced drawing, rendering, shadow construction, lettering techniques and advanced pictorial representation techniques.

EDIT 461 Principles of Vocational Guidance (3) The underlying principles of guidance and their application to the problems of educational and occupational adjustment of students of all ages.

EDIT 462 Occupational Analysis and Course Construction (3) Application of the techniques of occupational and job analysis concepts to instructional development and the design of occupational programs.

EDIT 464 Laboratory Organization and Management (3) The basic elements of organizing and managing an industrial education program, the selection of equipment, facility development, legal responsibilities of laboratory instructors, inventory, storage control and safety.

EDIT 465 Modern Industry (3) The manufacturing, service, and extractive industries in American social, economic, and cultural patterns. Representative basic industries studied from the viewpoints of personnel and management organization, industrial relations, production procedures, distribution of products, etc.

EDIT 466 Educational Foundations of Industrial Arts (3) A study of the factors which place industrial arts education in a well-rounded program of general education.

EDIT 467 Problems in Occupational Education (3) The procurement, assembly, organization, and interpretation of data relative to the scope, character and effectiveness of occupational education.

EDIT 470 Numerical Control in Manufacturing (3) The historical development of numerical control (N/C) in manufacturing, recent industrial trends in N/C, and a variety of N/C equipment and support services. N/C machine operations: machine motions, positioning control systems, N/C tapes and their preparation, manual and computer assisted (APT III) part programming. Experience in product design, part programming, and product machining.

EDIT 471 History and Principles of Vocational Education (3) The development of vocational education from primitive times to the present with special emphasis given to the vocational education movement with the American program of public education.

EDIT 472 Quality Control and Assurance in Industrial Settings (3) Principles and theory of quality control and assurance, with focus on "quality of conformance." Organizational aspects of QC/QA, data collection and analysis, quality control in input, process and output functions, and human and cultural dimensions of quality control.

EDIT 474 Organization and Administration of Youth Groups (3) Principles, practices, and theoretical considerations related to youth organizations as a co-curricular function of the subject areas of industrial arts, business and marketing education, home economics, health occupations and trades and industry

EDIT 475 Recent Technological Developments in Products and Processes (3) Recent technological developments as they pertain to the products and processes of industry. The nature of newer products and processes and their effect upon modern industry and/or society.

EDIT 476 Application of Technology to Societal Problems (3) A study of alternative solutions of a technological nature with respect to such areas as housing, transportation, energy, communications, production, trash and waste disposal, water development, and pollution control.

EDIT 477 Microcomputer Applications in Technology and Industry (3) Prerequisite: EDCI 487 or CMSC 103 or permission of department. Manufacturing, safety, and training applications in industrial settings included in programming and software utilization.

EDIT 481 Manufacture and Use of Inorganic Nonmetallic Materials (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: EDIT 381 or equivalent. Fabrication of products from calculated compositions; ap-

plication of forming process; utilization of compositions; experiences with property analysis and product design.

EDIT 482 Student Teaching: Trade and Industrial Education (2-12)

EDIT 484–486 Field Experiences in Vocational Areas. Supervised work experience in an occupation related to vocational education. Application of theory to work situations as a basis for teaching in vocational education programs. By individual arrangement with advisor.

EDIT 484 Field Experiences in Home Economics Education (3)

EDIT 485 Field Experiences in Business Education (3)

EDIT 486 Field Experiences in Marketing and Distributive Education (3)

EDIT 488 Selected Topics in Education (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

EDIT 489 Field Experiences in Education (1-4) Prerequisite: permission of department. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDIT 491 Plastics Design and Equipment Selection (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: EDIT 391 or permission of department. Experience with material selection, product design, mold design, auxiliary equipment and fixtures.

EDIT 492 Issues Encountered in Daily Living in the Home (3) Junior standing. Addresses issues such as differing values, orientations, communication styles and the integration of family living, work, and parenting.

EDIT 498 Special Problems in Education (1-6) Prerequisite: permission of department. Available only to majors who have definite plans for individual study of approved problems. Credit according to extent of work.

EDIT 499 Workshops, Clinics, and Institutes (1-6) Repeatable to 6 credits. The following type of educational enterprise may be scheduled under this course heading: Workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.

EDMS — Measurement, Statistics, and Evaluation

EDMS 410 Principles of Testing and Evaluation (3) Junior standing. Classroom assessment; testing principles; reliability and validity; uses of standardized tests; reporting procedures; computer technology as applied to measurement.

EDMS 451 Introduction to Educational Statistics (3) Junior standing. Introduction to statistical reasoning; location and dispersion measures; computer applications; regression and correlation; formation of hypotheses tests; t-test; one-way analysis of variance; analysis of contingency tables.

EDMS 465 Algorithmic Methods in Educational Research (3) Prerequisite: EDMS 451 or equivalent. Use of the computer as a tool in educational research. Instruction in a basic scientific computer source language as well as practical experience in program writing for solving statistical and educational research problems.

EDMS 489 Field Experiences in Measurement and Statistics (1-4) Prerequisite: permission of department. Repeatable to 4 credits. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDMS 498 Special Problems in Measurement and Statistics (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Available only to education majors who have formal plans for individual study of approved problems.

EDPA — Education Policy, Planning and Administration

EDPA 201 Education in Contemporary American Society (3) An examination of the relationship between education and the social environment in contemporary American society. Issues of equality or equal opportunity, individual and cultural differences, education outside of schools, the control of education, and the future of education.

EDPA 210 Historical and Philosophical Perspectives on Education (3) An examination of illustrative historical and philosophical examples of the interplay of ideas and events in the shaping of educational aims and practices from ancient cultures to modern technological societies.

EDPA 288 Special Problems in Education (1-6) Prerequisite: permission of department. Available only to freshmen and sophomore students who have definite plans for individual study of approved problems relative to their preparation for teaching.

EDPA 301 Foundations of Education (3) Historical social, cultural, and philosophical foundations of American education. Considers education as a profession, and the organizational structure, operation and function of modern school systems. Comparative education and contemporary issues are included.

EDPA 400 The Future of the Human Community (3) Examination of the future of our social and cultural institutions for education and child rearing, social and family relationships, health and leisure, information exchange, and the provision of food, clothing, and shelter.

EDPA 401 Educational Technology, Policy, and Social Change (3) Junior standing. Examines technology as a complex force which influences social change and the educational development of individuals.

EDPA 440 Educational Media (3) Survey of classroom uses of instructional media. Techniques for integrating media into instruction. Includes preparation of a unit of instruction utilizing professional and teacher produced media.

EDPA 488 Special Topics in Education Policy and Administration (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Special and intensive treatment of current topics and issues in education policy and administration.

EDPA 489 Field Experiences in Education (1-4) Prerequisite: permission of department. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDPA 498 Special Problems in Education (1-3) Prerequisite: permission of department. Available only to students who have definite plans for individual study of approved problems.

EDPA 499 Workshops, Clinics, and Institutes (1-6) Repeatable to 6 credits. The following type of educational enterprise may be scheduled under this course heading: Workshops conducted by the College of Education (or developed cooperatively with other colleges and universities) and not otherwise covered in the present course listing; clinical experiences in pupil-testing centers, reading clinics, speech therapy laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.

EDSP— Education, Special

EDSP 210 Introduction to Special Education (3) Characteristics and needs of children with handicaps. Current issues in special education.

EDSP 288 Special Topics in Teacher Education (1-3) Prerequisite: major in education or permission of department. Repeatable to 6 credits if content differs.

EDSP 298 Special Problems in Teacher Education (1-6) Prerequisite: permission of department. Available only to freshmen and sophomore education majors who have definite plans for individual study of approved problems relative to their preparation for teaching. Credit according to extent of work.

EDSP 320 Introduction to Assessment in Special Education (3) Prerequisite: EDSP 210. Pre- or corequisite: EDSP 321; and EDSP 322. Recommended: STAT 100 or SOCY 201. For EDSP majors only. Assessment instruments and procedures and specific criterion-referenced and norm-referenced measures used in special education.

EDSP 321 Comparative Approaches to Behavior and Classroom Management in Special Education (3) Prerequisite: EDSP 210. Pre- or corequisites: EDSP 320; and EDSP 322. The development of behavior and classroom management techniques used in special education.

EDSP 322 Field Placement in Special Education I (2-3) Pre- or corequisites: EDSP 320; and EDSP 321. For EDSP majors only. Practicum experience in special education setting. The application of assessment and classroom management procedures. Field placement for two or three half-days per week.

EDSP 330 Families and the Education of Handicapped Children (3) Prerequisite: EDSP 321 or permission of department. Corequisites: {EDSP 405, EDSP 424, EDSP 445 or EDSP 463} or permission of department. For EDSP majors only. Emphasis on the impact of handicapped children on families and strategies for communicating and working with families.

EDSP 331 Introduction to Curriculum and Instructional Methods in Special Education (3) Prerequisites: EDSP 320; and EDSP 321. Pre- or corequisites: EDSP 332; and EDSP 333; and EDSP 443. For EDSP majors only. Instructional principles and programs in special education.

EDSP 332 Interdisciplinary Communication in Special Education (3) Prerequisites: EDSP 320; and EDSP 321. Pre- or corequisites: EDSP 331; and EDSP 333; and EDSP 443. For EDSP majors only. Terminology, procedures and professional roles specific to persons providing services to handicapped children.

EDSP 333 Field Placement in Special Education II (2-3) Prerequisite: EDSP 322. Pre- or corequisites: EDSP 331; and EDSP 332; and EDSP 443. For EDSP majors only. Practicum experience in special education setting. Opportunities to apply curriculum methods and materials. Two or three half-days per week.

EDSP 349 Student Teaching of Exceptional Children (8) For EDSP majors only. Student teaching full-time for eight weeks with exceptional children.

EDSP 376 Fundamentals of Sign Language (3) Receptive and expressive skills in American Sign Language. Examination of the causes of deafness, characteristics of deaf education, and aspects of the culture of the deaf community.

EDSP 400 Assessment, Curriculum and Instructional Methods For Students with Severe Handicaps (3) Corequisites: {EDSP 402 or EDSP 431} or permission of department. Examination of functional assessment procedures, curriculum development and analysis, and instructional techniques for students with severe handicaps.

EDSP 401 Environmental Adaptations for Severely Handicapped Students (3) Pre- or corequisites: {EDSP 411; and EDSP 412} or {EDSP 430; and EDSP 431}. Management problems of and alternatives for severely handicapped individuals.

EDSP 402 Field Placement: Severely Handicapped I (2-5) Pre- or corequisites: {EDSP 400; and EDSP 404} or permission of department. Practicum experience in settings serving severely handicapped individuals. Enrollment limited to those admitted to severely handicapped specialty area. Field placement for two to five half-days per week.

EDSP 403 Physical and Communication Adaptations for Students with Severe Handicaps (3) Prerequisites: {EDSP 400; and EDSP 404} or permission of department. Corequisites: {EDSP 330; and EDSP 405; and EDSP 410} or permission of department. Development, assessment, and instruction of mobility, feeding, grooming, and communication techniques to increase independent functioning for students with severe handicaps.

EDSP 404 Education of Students with Autism (3) Pre- or corequisites: {EDSP 400 and EDSP 402} or permission of department. Characteristics, needs, assessment, and educational methods for students diagnosed as autistic.

EDSP 405 Field Placement: Severely Handicapped II (2-5) Prerequisite: EDSP 402 or permission of department. Pre- or corequisites: EDSP 330; and EDSP 403; and EDSP

410 or permission of department. Practicum experience in settings serving severely handicapped individuals. Field placement for two to five half-days per week.

EDSP 410 Community Functioning Skills for Students with Severe Handicaps (3) Prerequisites: {EDSP 400; and EDSP 404} or permission of department. Corequisites: EDSP 330; and EDSP 403; and EDSP 405. Assessment, instructional techniques, and curriculum development related to community functioning skills for students with severe handicaps.

EDSP 411 Field Placement: Severely Handicapped III (2-5) Prerequisite: EDSP 405. Pre- or corequisites: {EDSP 412; and (EDSP 420 or EDSP 460)} or permission of department. Practicum experience in settings serving severely handicapped individuals. Field placement for two to five half-days per week.

EDSP 412 Vocational and Transitional Instruction for Students with Severe Handicaps (3) Corequisites: {EDSP 411 or EDSP 465} or permission of department. Assessment and instructional strategies for developing the vocational and transitional skills of students with severe handicaps.

EDSP 417 Student Teaching: Severely Handicapped (4-11) Student teaching, full-time for twelve weeks, with severely handicapped individuals. Limited to special education majors admitted to severely handicapped specialty area.

EDSP 418 Seminar: Issues and Research Related to the Instruction of Severely Handicapped Students (1-3) For EDSP majors only. Repeatable to 6 credits if content differs. Examines the current research related to the instruction of severely handicapped individuals.

EDSP 420 Developmental and Behavioral Characteristics of Nonhandicapped and Handicapped Infants and Young Children (3) Corequisites: {EDSP 421 or EDSP 411} or permission of department. Study of the developmental, behavioral, and learning characteristics of nonhandicapped and handicapped infants and young preschool children.

EDSP 421 Field Placement: Early Childhood Special Education I (2-3) Pre- or corequisite: EDSP 420; and EDCI 410. Practicum experience in settings serving preschool handicapped children. Opportunities for studying the patterns of development and learning among nonhandicapped and handicapped infants and older preschoolers. Enrollment limited to students admitted to early childhood specialty. Field placement for two or three half-days per week.

EDSP 422 Curriculum and Instruction in Early Childhood Special Education (Moderate to Mild: 3-8 Years) (3) Prerequisites: {EDCI 410; and EDSP 420} or permission of department. Corequisites: EDSP 330; and EDSP 424. Characteristics, methods and materials for the instruction of young children (ages 3-8) traditionally labeled mild to moderately handicapped.

EDSP 423 Assessment of Preschool Handicapped Children and Infants (3) Prerequisites: EDSP 330; and EDSP 422. Corequisites: EDSP 430; and EDSP 431; and EDSP 400 or EDSP 441. Current psychoeducational assessment and evaluation procedures used with profoundly to moderately handicapped infants and young preschool children. Psychometric, criterion-referenced, developmental checklists, and automated and ecological assessment procedures. Administration of selected assessment instruments.

EDSP 424 Field Placement: Early Childhood Special Education II (Moderate to Mild) (2-4) Prerequisite: EDSP 421 or permission of department. Pre- or corequisites: EDSP 330; and EDSP 422. Practicum experience in settings serving young (ages 3 to 8) mild to moderately handicapped children in self-contained and integrated early childhood programs. Opportunities to apply educational methods and materials. Field placement for two to four half-days per week.

EDSP 430 Intervention Techniques and Strategies For Preschool Handicapped Children and Infants (Severe to Moderate, Birth-6 Years) (3) Prerequisites: EDSP 330; and EDSP 422. Corequisites: EDSP 423, and EDSP 431; and (EDSP 400 or EDSP 441). Current approaches to the treatment of preschool severely to moderately handicapped children.

EDSP 431 Field Placement: Early Childhood Special Education III (Severe to Moderate) (2-4) Prerequisite: EDSP 424 or permission of department. Pre- or corequisites: EDSP 430; and EDSP 423; and (EDSP 400 or EDSP 441). Opportunities to apply techniques, strategies, methods and materials for educating severely to moderately handicapped infants and young children. Field placement for two to four half-days per week.

EDSP 437 Student Teaching: Early Childhood Special Education (4-11) Student teaching, full-time for twelve weeks, with handicapped infants and preschool children. Limited to special education majors in early childhood special education specialty area.

EDSP 438 Seminar: Special Issues in Early Childhood Special Education (1-3) Prerequisite: permission of department. For EDSP majors only. Repeatable to 6 credits if content differs. Study of current issues and research concerning education of preschool handicapped children.

EDSP 440 Assessment and Instructional Design for the Educationally Handicapped: Cognitive and Psychosocial Development (3) Prerequisites: {EDSP 441; and EDCI 456} or permission of department. Pre- or corequisites: EDSP 330; and EDSP 445. Learning style, cognitive, and problem-solving strategies, and psychosocial behavior of educationally handicapped individuals at elementary to secondary levels. Characteristics, assessment and instruction. Enrollment limited to Special Education majors accepted into educationally handicapped area of specialization.

EDSP 441 Assessment and Instructional Design for the Educationally Handicapped: Oral Language and Communication Disorders (3) Corequisites: {EDSP 442 or EDSP 431} or permission of department. Characteristics of individuals with oral language and communication disorders, assessment of such disorders and instructional strategies, curricula and materials.

EDSP 442 Field Placement: Educationally Handicapped I (2-3) Pre- or corequisite: {EDSP 441 and EDCI 456} or permission of department. Practicum experience in settings serving educationally handicapped individuals. Demonstration of the content of EDSP 441. Enrollment limited to students admitted to educationally handicapped specialty. Field placement for two or three half-days per week.

EDSP 443 Assessment and Instructional Design for the Handicapped: Reading and Written Communication Disorders (3) Prerequisites: {EDSP 320; and EDSP 321} or permission of department. Pre- or corequisites: EDSP 331; and EDSP 332; and EDSP 333. Characteristics and assessments of individuals with reading and written communication disorders at elementary to secondary levels, and methods of teaching reading and written language skills to such individuals. Adaptation of regular instructional methods and curricula.

EDSP 445 Field Placement: Educationally Handicapped II (2-4) Prerequisite: EDSP 442 or permission of department. Pre- or corequisites: {EDSP 330; and EDSP 440; and EDSP 443}. Practicum experience in settings serving educationally handicapped. The application of instructional design and assessment in cognitive development. Field placement for 2-4 half-days per week.

EDSP 446 Instructional Design for the Educationally Handicapped: Functional Living Skills (3) Pre- or corequisites: {EDSP 447 or EDSP 465} or permission of department. Instructional methods, curricula and materials designed to teach functional living skills to educationally handicapped individuals at elementary to secondary levels. Curricula and teaching strategies in science and social studies used in general education and adaptations for educationally handicapped individuals.

EDSP 447 Field Placement: Educationally Handicapped III (2-4) Prerequisite: EDSP 445 or permission of department. Pre- or corequisites: EDSP 446; and EDSP 450; and EDSP 460. Practicum experience in settings serving educationally handicapped individuals. The application of the content of EDSP 446, EDSP 450 and EDSP 460. Field placement for two to four half-days per week.

EDSP 450 Program Management for the Educationally Handicapped (3) Corequisites: {EDSP 411 or EDSP 447 or EDSP 465} or permission of department. Emphasis on skills in managing programs for educationally handicapped individuals. Service delivery models; scheduling, establishing referral, assessment and follow through procedures; methods for mainstreaming; training aides and volunteers.

EDSP 457 Student Teaching: Educationally Handicapped (4-11) For EDSP majors only. Student teaching, full-time for twelve weeks, with educationally handicapped individuals.

EDSP 458 Seminar: Special Issues and Research Related to the Educationally Handicapped (1-3) Repeatable to 6 credits if content differs. Current issues and research concerning the education of educationally handicapped individuals.

EDSP 460 Career/Vocational Education For the Handicapped (3) Corequisites: {EDSP 461 or EDSP 411 or EDSP 447} or permission of department. Introduction to career/vocational education for the handicapped. Historical and current issues and trends, characteristics and training needs of handicapped individuals and review of existing programs.

EDSP 461 Field Placement: Career/Vocational I (2-3) Pre- or corequisite: {EDSP 460; and EDCI 456; and EDIT 421} or permission of department. For EDSP majors only. Practicum experience in career vocational education for the handicapped. Field placement for two or three half-days per week.

EDSP 462 Vocational Assessment and Instruction in Special Education (3) Prerequisite: EDSP 460 or permission of department. Current vocational assessment strategies, interpretation of assessment results, and planning, delivery and evaluation of instruction in vocational education for secondary students with disabilities.

EDSP 463 Field Placement: Career/Vocational II (2-3) Prerequisite: EDSP 461 or permission of department. Pre- or corequisites: EDSP 330; and EDSP 462. Practicum experience in career/vocational programs for the handicapped. Field placement for two or three half-days per week.

EDSP 464 Secondary and Transition Methods in Special Education (3) Prerequisite: EDSP 462 or permission of department. Current secondary vocational/special education issues and transition methods including work-study programming, job development, and job coaching

EDSP 465 Field Placement: Career/Vocational III (2-3) Prerequisite: EDSP 463. Pre- or corequisite: EDSP 446; and EDSP 450; and EDSP 464. For EDSP majors only. Practicum experience in career/vocational programs for the handicapped. Field placement for two or three half days per week.

EDSP 467 Student Teaching: Career/Vocational (4-11) A full-time twelve week field assignment in a setting providing career/vocational education for handicapped students. Enrollment limited to Special Education majors who have successfully completed coursework in the career/vocational area of specialization.

EDSP 468 Special Topics Seminar in Career/Vocational Education For the Handicapped (1-3) Prerequisite: permission of department. For EDSP majors only. Repeatable to 6 credits if content differs. Current issues and research relating to career/vocational education of the handicapped.

EDSP 470 Introduction to Special Education (3) Designed to give an understanding of the needs of all types of exceptional children.

EDSP 471 Chereteristics of Exceptional Children: Mentally Retarded (3) Prerequisite: EDSP 470 or equivalent. Studies the diagnosis, etiology, physical, social and emotional charactenstics of exceptional children.

EDSP 472 Education of Exceptional Children: Mentally Reterded (3) Prerequisite: EDSP 471 or equivalent. Offers practical and specific methods of teaching exceptional children. Selected observation of actual teaching may be arranged.

EDSP 473 Curriculum For Exceptional Children: Mentally Retarded (3) Prerequisite: EDSP 471 or equivalent. Examines the principles and objectives guiding curriculum for exceptional children; gives experience in developing curriculum; studies various curricula currently in use.

EDSP 475 Education of the Slow Learner (3) Studies the characteristics of the slow learner and those educational practices which are appropriate for the child who is functioning as a slow learner.

EDSP 476 Communicating with Sign Language (3) Prerequisite: EDSP 376 or permission of department. Intermediate level receptive/expressive skills in American Sign Language. Aspects of the culture, history, and research perspectives of the deaf community.

EDSP 480 Microcomputers in Special Education (3) Credit will be granted for only one of the following: EDCI 385, EDCI 487, EDCI 406, EDIT 477, or EDSP 480. Microcomputers for the education of handicapped individuals.

EDSP 481 Characteristics of Exceptional Children: Gifted and Talented (3) Prerequisite: EDSP 470 or equivalent. Studies the diagnosis, etiology, physical, social, and emotional characteristics of gifted and talented children.

EDSP 482 Education of Exceptional Children: Gifted and Talented (3) Prerequisite: EDSP 481 or equivalent. Offers practical and specific methods of teaching gifted and talented children. Selected observation of actual teaching may be arranged.

EDSP 483 Curriculum For Exceptional Children: Gifted and Talented (3) Prerequisite: EDSP 481 or equivalent. Examines the principles and objectives guiding current curriculum for gifted and talented children; gives experience in developing curriculum; studies various curricula currently in use.

EDSP 488 Selected Topics in Teacher Education (1-3) Prerequisite: major in education or permission of department. Repeatable to 6 credits if content differs.

EDSP 489 Field Experiences in Special Education (1-4) Prerequisite: permission of department. Planned field experience in education-related activities. Credit not to be granted for experiences accrued prior to registration.

EDSP 491 Characteristics of Learning Disabled Students (3) Prerequisite: EDSP 470 or permission of department. Diagnosis, etiology, physical, social, and emotional characteristics of learning disabled students.

EDSP 492 Education of Learning Disabled Students (3) Prerequisite: EDSP 491 or permission of department. Methods of teaching learning disabled children.

EDSP 493 Curriculum For Exceptional Children: Learning Disabilities (3) Prerequisite: EDSP 492 or equivalent. Principles and objectives guiding curriculum for children with learning disabilities; gives experience in developing curriculum; studies various curricula currently in use.

EDSP 498 Special Problems in Special Education (1-6) Prerequisite: permission of department. Available only to education majors who have definite plans for individual study of approved problems. Credit according to extent of work.

EDSP 499 Workshops, Clinics, and Institutes in Special Education (1-6) Repeatable to 6 credits if content differs. The following type of educational enterprise may be scheduled under this course heading: workshops conducted by the special education department (or developed cooperatively with other departments, colleges and universities) and not otherwise covered in the present course listing. Laboratories, and special education centers; institutes developed around specific topics or problems and intended for designated groups such as school superintendents, principals and supervisors.

EDUC — Education

EDUC 388 Special Topics in Education (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

EDUC 499 Honors Thesis (1-6) Prerequisites: admission to College Honors Program and permission of college. Individual thesis work under supervision of faculty advisors; includes periodic seminar meetings with other honors students engaged in thesis work.

ENAE — Engineering, Aerospace

ENAE 201 Introduction to Aerospace Engineering I (2) Prerequisite: ENES 110. History of aeronautical engineering, technical fundamentals, the standard atmosphere, basic aerodynamics, and the aerodynamics of airfoils, wings and other aerodynamic shapes.

ENAE 202 Introduction to Aerospace Engineering II (2) Prerequisite: ENAE 201. Elements of airplane performance. Principles of airplane stability and control. Basic astronautics, including orbital and escape trajectories, flight propulsion fundamentals, propellers, IC engines, jet and rocket engines.

ENAE 305 Aerospace Laboratory I (3) Prerequisite: PHYS 263. Pre-or corequisites: ENAE 345; and ENAE 451; and ENAE 371. Measurement philosophy, data analysis, error assessment, sensing devices, optical methods, material tests; flow visualization techniques, manometry, dynamic response of measurement systems. Application of instrumentation in aerospace engineering.

ENAE 345 Flight Dynamics (3) Prerequisites: ENES 221; and MATH 246. Kinematics and concept of system state. Dynamic principles applied to particles, discrete mass and continuously distributed mass systems, LaGrangian dynamics, dynamic stability of systems, applications to dynamics of aerospace vehicles and vehicle components.

ENAE 355 Aircraft Vibrations (3) Prerequisite: ENAE 345 or equivalent. Free and forced vibration of single and multiple degree of freedom systems.

ENAE 371 Aerodynamics I (3) Prerequisites: ENAE 202; and PHYS 262; and MATH 241. Corequisite: MATH 246. Basic fluid mechanics and aerodynamic theory.

ENAE 398 Honors Research Project (1-3) ENAE 401 Aerospace Laboratory II (2) Prerequisites: ENAE 305; and ENAE 345. Corequisites: ENAE 452; and ENAE 471. Application of fundamental measurement techniques to experiments in aerospace engineering, structural, aerodynamic, and propulsion tests, correlation of theory with experimental results.

ENAE 402 Aerospace Laboratory III (1) Prerequisites: ENAE 305; and ENAE 345. Corequisites: ENAE 452; and ENAE 471; and ENAE 475. Application of fundamental measurement techniques to experiments in aerospace engineering, structural, aerodynamic, flight simulation, and heat transfer tests. Correlation of theory with experimental results.

ENAE 411 Aircraft Design (3) Prerequisites: ENAE 345; and ENAE 451; and ENAE 371. Theory, background and methods of airplane design, subsonic and supersonic.

ENAE 412 Design of Aerospace Vehicles (3) Prerequisites: ENAE 345; and ENAE 371. Theory, background and methods of space vehicle design for manned orbiting vehicles, manned lunar and planetary landing systems.

ENAE 415 Computer-Aided Structural Design Analysis (3) Prerequisite: ENAE 452 or permission of both department and instructor. Introduction to structural design concepts and analysis techniques. Introduction to computer software for structural analysis which is utilized to verify exact solutions and perform parametric design studies of aerospace structures.

ENAE 445 Stability and Control of Aerospace Vehicles (3) Prerequisites: ENAE 345; and ENAE 371. Dynamics of flight vehicles with emphasis on stability and control of vehicles in the atmosphere.

ENAE 451 Flight Structures I: Introduction to Solid Mechanics (4) Prerequisite: ENES 220. An introduction to the analysis of aircraft structural members. Introduction to theory of elasticity, mechanical behavior of materials, thermal effects, finite-difference approximations, virtual work, variational and energy principles for static systems.

ENAE 452 Flight Structures II: Structural Elements (3) Prerequisite: ENAE 451. Application of variational and energy principles to analysis of elastic bodies; stresses and deflections of beams including effects of non-principal axes, non-homogeneity, and thermal gradients; differential equations of beams, bars, and cables. Stresses and deflections of torsional members, stresses due to shear. Deflection analysis of structures.

ENAE 453 Matrix Methods in Computational Mechanics (3) Prerequisite: ENAE 452 or permission of both department and instructor. Introduction to the concepts of computational analysis of continuous media by use of matrix methods. Foundation for use of finite elements in any field of continuum mechanics, with emphasis on the use of the displacement method to solve thermal and structural problems.

ENAE 461 Flight Propulsion I (3) Prerequisites: ENME 217; and ENAE 471. Operating principles of piston, turbojet, turboprop, ramjet and rocket engines, thermodynamic cycle analysis and engine performance, aerothermochemistry of combustion, fuels, and propellants.

ENAE 462 Flight Propulsion II (3) Prerequisite: ENAE 461. Advanced and current topics in flight propulsion.

ENAE 471 Aerodynamics II (3) Prerequisites: ENAE 371; and ENME 217. Elements of compressible flow with applications to aerospace engineering problems.

ENAE 473 Aerodynamics of High-Speed Flight (3) Prerequisite: ENAE 471 or equivalent. An advanced course dealing with aerodynamic problems of flight at supersonic and hypersonic velocities. Unified hypersonic and supersonic small disturbance theories, real gas effects, aerodynamic heating and mass transfer with applications to hypersonic flight and re-entry.

ENAE 475 Viscous Flow and Aerodynamic Heating (3) Prerequisites: ENAE 371; and ENAE 471; and ENME 217. Fundamental aspects of viscous flow, Navier-Stokes equations, similarity, boundary layer equations; laminar, transitional and turbulent incompressible flows on airfoils, thermal boundary layers and convective heat transfer; conduction through solids, introduction to radiative heat transfer.

ENAE 488 Topics in Aerospace Engineering (1-4) Technical elective taken with the permission of the student's advisor and instructor. Lecture and conference courses designed to extend the student's understanding of aerospace engineering. Current topics are emphasized.

ENAE 499 Elective Research (1-3) Prerequisites: senior standing in ENAE major and permission of department, instructor, and student's advisor. Repeatable to 6 credits. Original research projects terminating in a written report.

ENAG—Engineering, Agricultural

ENAG 100 Basic Agricultural Engineering Technology (3) An introduction to the application of engineering concepts. Topics include quantification measurements; mechanical, thermal, fluid and electrical principles and their relationship to biological systems and materials of agricultural and aquacultural products (for non-engineering majors).

ENAG 200 Fundamentals of Agricultural Mechanics (3) Two hours of lecture and four hours of laboratory per week. Study of hand tools and power shop equipment as they relate to mechanized agriculture, in tool fitting, plumbing, wood and metal working, welding, brazing, soldering, hot and cold sheet metal, electricity, construction and building materials, sketching, drawing and using plans for construction. Emphasis is upon the development of orderly and safe shop procedures.

ENAG 232 Water, A Renewable Resource (3) For non-engineering students.. Occurrence and distribution of water. Review of both natural and man-made water resource systems. Basics of water quality and waste water treatment.

ENAG 234 Principles of Erosion and Water Control (1) Introduction to principles of estimating runoff and erosion. Engineering principles necessary to control erosion and runoff from agricultural areas. For non-engineering students.

ENAG 236 Design of Drainage Systems (1) Effect of drainage on crop production and quality. Design of agricultural drainage systems. For non-engineering students.

ENAG 237 Design of Irrigation Systems (1) Principles and practices of agricultural irrigation, including types of irrigation systems, soil water concepts, computing evapotranspirati on, irrigation scheduling and design of a sprinkler irrigation system. For non-engineering students.

ENAG 305 Farm Mechanics (2) For agricultural education majors only. Senior standing. Two laboratory periods a week This course consists of laboratory exercises in practical farm shop and farm equipment maintenance, repair, and construction projects, and a study of the principles of shop organization and administration.

ENAG 315 Energy: Its Effects On Agriculture and Food (3) Introduction to the current energy problems in agricultural production and food supply. Energy issues, alternate sources of energy, energy conservation practices, possible solutions and limitations.

ENAG 414 Mechanics of Food Processing (4) Prerequisite: PHYS 121. Three lectures and one laboratory per week. Applications in the processing and preservation of foods, of power transmission, hydraulics, electricity, thermodynamics, refrigeration, instruments and controls, materials handling and time and motion analysis.

ENAG 421 Power Systems (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENME 217 and ENEE 300 and (ENME 342 or ENCE 330). Analysis of energy conversion devices including internal combustion engines, electrical and hydraulic motors. Fundamentals of power transmission and coordination of power sources with methods of power transmission.

ENAG 422 Soil and Water Engineering (3) Prerequisite: ENME 342 or ENCE 330. Applications of engineering and soil sciences in erosion control, drainage, irrigation and watershed management. Principles of agricultural hydrology and design of water control and conveyance systems.

ENAG 424 Functional and Environmental Design of Agricultural Structures (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENAG 454. An analytical approach to the design and planning of functional and environmental requirements of plants and animals in semi- or completely enclosed structures.

ENAG 435 Aquacultural Engineering (3) Prerequisite: permission of department. A study of the engineering aspects of development, utilization and conservation of aquatic systems. Emphasis will be on harvesting and processing aquatic animals or plants as related to other facets of water resources management.

ENAG 444 Functional Design of Machinery and Equipment (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENES 221. Senior standing. Theory and methods of agricultural machine design. Application of machine design principles and physical properties of soils and agricultural products in designing machines to perform specific tasks.

ENAG 454 Biological Process Engineering (4) Prerequisite: ENME 342 or ENCE 330. Design of systems to pump, heat, cool, dry and control biological materials as part of food and agricultural engineering. The effect of physical parameters on biological material response to these processes.

ENAG 489 Special Problems in Agricultural Engineering (1-3) Prerequisite: permission of department. Student will select an engineering problem and prepare a technical report. The problem may include design, experimentation, and/or data analysis.

ENAG 499 Special Problems in Agricultural Engineering Technology (1-3) Prerequisite: permission of department. Not acceptable for majors in agricultural engineering. Problems assigned in proportion to credit.

ENCE — Engineering, Civil

ENCE 201 Computational Methods in Civil Engineering I (3) Corequisite: MATH 241; and ENES 220. Formerly ENCE 360. Introduction to computer programming with structured language. Elementary numerical analysis. Linear algebra, simultaneous equations, roots of equations, numerical integration. Applications to engineering problems.

ENCE 255 Elementary Structural Analysis (3) Prerequisite: ENES 220. Methods of analysis of statically determinate and indeterminate structures for fixed and moving loads. Equations of equilibrium and compatibility. Influence lines, shear and moment envelopes. Analysis of forces and deflections in structures by methods of moment distribution, consistent deformation, and virtual work.

ENCE 300 Fundamentals of Engineering Materials (3) Two hours of lecture and one hour of laboratory per week. Pre- or corequisite: ENES 220. Properties and constitution of the principal materials used in civil engineering. Laboratory tests for these properties, interpretation of test results and of specifications.

ENCE 301 Computational Methods in Civil Engineering II (3) Prerequisites: MATH 246; and ENCE 201. Junior standing. Advanced computer programming, statistical methods, reliability and probability theory, differential equations. Civil engineering applications.

ENCE 315 Introduction to Environmental Engineering (3) Prerequisites: CHEM 103; and PHYS 161. Not open to ENGR students who have completed ENCE 221. Formerly ENCE 221. Physical, chemical, and biological systems relating to the quality of land, water, and air environments. Current environmental pollution problems will be examined and methods of pollution abatement discussed.

ENCE 320 Construction Engineering and Management (3) Corequisite: ENCE 321 or permission of department. Credit will be granted for only one of the following: ENCE 320 or ENCE 421. Overview of the construction management process in relation to each phase of a project from the inception of the need by the client to the completion of the work in the field.

ENCE 321 Engineering Survey Measurements (1) Three hours of laboratory per week. Corequisites: MATH 141; and ENCE 320. Formerly ENCE 280. Standards, units, calibration, measurement of distance elevation and angles. Area measurements and mapping.

ENCE 330 Basic Fluid Mechanics (3) Prerequisites: ENES 220; and ENES 221; and PHYS 262. The study of fluids at rest and in motion. Principles of viscous and turbulent flow. Impulse and momentum concepts. Pumps, turbines and meters. Dimensional analysis and laws of similarity.

ENCE 340 Fundamentals of Soil Mechanics (3) Prerequisite: ENES 220. Corequisite: ENCE 300. Introductory study of soils in civil engineering. Soil origin, phase relationships and classification schemes. Soil hydraulics: capillary, effective stress, permeability and seepage considerations. Basic stress distribution theories and soil consolidation-settlement analysis. Integration of shear strength evaluation with slope stability analysis.

ENCE 350 Structural Analysis and Design I (3) Prerequisite: ENES 220. Corequisite: ENCE 300. Methods of analysis of statically determinate structures for fixed and moving loads. Equilibrium, influence lines, stability. Structural design of steel buildings and bridges, including design of tension members, beams, columns, trusses, and welded, bolted, and riveted connections.

ENCE 351 Structural Analysis and Design II (3) Prerequisites: ENCE 300; and ENCE 350. Analyses for stresses in statically indeterminate beams and frames by approximate methods and by moment distribution. Influence lines and maximum shear and moment for continuous members. Design of reinforced concrete beams, continuous beams, and columns by elastic theory and by ultimate strength design.

ENCE 355 Elementary Structural Design (3) Prerequisites: ENCE 255; and ENCE 300. Structural design of members for buildings and bridges subjected to tension, compression, shear and bending. Materials: structural steel and reinforced concrete. Design of welded and bolted connections. Placement of reinforcing bars in concrete members.

ENCE 370 Fundamentals of Transportation Engineering (3) Prerequisite: ENCE 280. Engineering problems of transportation by airways, highways, pipelines, railways, and waterways. Elementary dynamics of traffic and function consideration of routes and terminals.

ENCE 398 Honors Research Project (1-3)

ENCE 410 Advanced Strength of Materials (3) Prerequisites: ENCE 350; and MATH 246. Behavior of structural members under load. Straight and curved beam analysis, unsymmetrical bending, shear center, beams on elastic foundation. Torsion of solid and thin walled members. Applied elasticity and stress-strain relations. Advanced topics in mechanics.

ENCE 420 Construction Equipment and Methods (3) Prerequisite: ENCE 320. Junior standing. For ENCE majors only. Evaluation and selection of equipment and methods for construction of projects, including earthmoving, paving, steel and concrete construction, formwork, trenching, cofferdams, rock excavation, tunneling, site preparation and organization. Design of formwork, trench supports, and cofferdams.

ENCE 423 Project Estimating, Planning and Control (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: ENCE 320. For ENCE majors only. Application of planning and scheduling techniques for construction work; introduction to resource leveling and time-cost trade-offs; cost estimating, cost indices, parametric estimates, unit price estimates.

ENCE 425 Decision Support Systems for Construction (3) Prerequisite: ENCE 320. For ENCE majors only. Computer hardware and software tools in civil engineering practice and research. Topics include computer hardware; the operating systems for the hardware; the software available on those systems, (e.g., text editors, word processors, spread sheets, interpreters, compilers, communication packages, etc.); the use and development of computer tools for civil engineering applications.

ENCE 430 Flow in Open Channels and Conveyance Structures (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: ENCE 330. Application of theoretical, experimental and computer simulation techniques in the design of open channels and conveyance structures including transitions, spillways, culverts, wiers, and bridge openings. Uniform and non-uniform flows under subcritical or supercritical conditions. Analysis of unsteady, spatially varied overland and channel flows. Laboratories will emphasize techniques to improve understanding of complex flow phenomena and to provide design information.

ENCE 431 Surface Water Hydrology (3) Prerequisite: ENCE 330. Study of the physical processes of the hydrologic cycle. Hydrometeorology, concepts of weather modification, evaporation and transpiration infiltration studies, runoff computations, flood routing, reservoir requirements, emphasis on process simulation as a tool in the water resource development.

ENCE 432 Ground Water Hydrology (3) Prerequisite: ENCE 330. Concepts related to the development of the ground water resource, hydrogeology, hydrodynamics of flow through porous media, hydraulics of wells, artificial recharge, sea water intrusion, basin-wide ground water development.

ENCE 433 Environmental Engineering Analysis (3) Two hours of lecture and one hour of laboratory per week. Prerequisites: CHEM 113; and ENCE 315. The theory and analytical techniques used in evaluating man's environment. Emphasis on quantitative, physical, electroanalytical and organic chemistry as applied to chemical analysis of water.

ENCE 435 Sanitary Engineering Analysis and Design (4) Three hours of lecture and one hour of laboratory per week. Prerequisites: ENCE 315, and ENCE 330. The application of sanitary analysis and fundamental principles to the design and operation of water and waste water treatment plants and the control of stream pollution.

ENCE 436 Drinking Water Treatment (3) Prerequisite: ENCE 315. Basic theory and practical design considerations for unit processes involved in drinking water treatment. The physiochemical operations considered include coagulation/flocculation, sedimentation, filtration, adsorption, ion exchange, aeration, and disinfection.

ENCE 440 Engineering Soil Tests (4) Two hours of lecture and two hours of laboratory per week. Prerequisite: ENCE 340. Review of major soil tests and their interpretation for engineering purposes. Engineering classification tests (Atterberg limits, grain-size distribution, specific gravity), permeability and seepage properties, in-situ and lab density-moisture tests, soil strength (penetrometers, vane shear, CBR, unconfined compression, direct shear and triaxial) and compressibility characteristics.

ENCE 441 Soil-Foundation Systems (3) Prerequisite: ENCE 340. Review of classical lateral earth pressure theories, analysis of braced excavation systems, cantilever and anchored sheet piling design, bearing capacity of shallow foundations (footings and mats) design of deep pile foundations to include pile capacity and pile group action.

ENCE 442 Highway and Airfield Pavement Design (3) Prerequisite: ENCE 340. Principles relative to the design, construction and rehabilitation of highway and airfield pavement systems. Introduction to multi-layered elastic and slab theories, properties of pavement materials and methods of characterization, stochastic treatment of design variables, economic principles of design alternates and the effect of environment upon pavement performance. Review of existing rigid and flexible design methods as well as major fundamentals relative to the rehabilitation of existing pavement systems.

ENCE 453 Computer-Aided Structural Analysis (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: ENCE 201; and ENCE 355. Computer-aided analysis of structural systems. Unified matrix formulation of stiffness and flexibility methods. Slope deflection method. Evaluation of truss, frame, and grid systems. Non-prismatic and curved elements. Error analysis and determination of ill-conditions. Introduction to finite element methods; formulation of simple two-dimensional elements. In laboratory, use and development of CAD software.

ENCE 454 Design of Concrete Structures (3) Prerequisites: ENCE 255; and ENCE 355. Formerly ENCE 451. Combined bending and compression, development and anchorage of reinforcement, deflections, design of slabs including one-way and two-way, design of footings, retaining walls, introduction to prestressed concrete, design of multi-story buildings.

ENCE 455 Design of Steel Structures (3) Prerequisites: ENCE 255; and ENCE 355. Formerly ENCE 450. Behavior and design of members subjected to fatigue, and combined bending and compression; plate girders, composite beams, open-web joists and connections. Methods of allowable stress design, and load and resistance factor design. Elements of plastic analysis and design. Framing systems and loads for industrial buildings and bridges.

ENCE 460 Modern Techniques For Structural Analysis (3) Two hours of lecture and one hour of laboratory per week. Prerequisite: ENCE 360. Pre- or corequisite: ENCE 351. Application of computer oriented methods and numerical techniques to analysis and design of structural systems. Matrix formulation of the stiffness and flexibility methods for framed structures. Introduction of numerical techniques to the solution of selected problems in such topics as plates, structural stability, and vibrations.

ENCE 461 Analysis of Civil Engineering Systems I (3) Prerequisite: permission of department. Application of the principles of engineering economy and statistics to the solution of civil engineering problems. Economic comparison of alternatives using present worth, annual cost, rate of return and cost benefit analyses. Development and use of simple and multiple regression models, and statistical decision theory.

ENCE 462 Systems Analysis for Civil Engineers (3) Prerequisite: ENCE 201. Systems analysis concepts including classifications, life-cycle engineering and function. Deterministic modeling and optimization with emphasis on civil engineering applications. Queing theory analysis and simulation and systems engineering management.

ENCE 463 Economic Analysis for Civil Engineers (3) Prerequisite: permission of department. Development and application of engineering economic principles to engineering problems. Evaluation of design alternatives in terms of costs and benefits, tax effects and uncertainties. Introduction to micro-economic analysis.

ENCE 464 Computer Applications in Civil Engineering (3) Senior standing. For ENCE majors only. A broad range of computer applications in civil engineering are surveyed, with emphasis on applications and techniques suited to desk-top workstations, including workstation hardware and software components, operating systems and programming languages, structured programming concepts and the design of interactive engineering software, advanced input/output techniques, data structures, non-numeric algorithms, engineering computer graphics, general applications software, and data communications.

ENCE 465 Geographic Information Systems for Planning and Design Models (3) Senior standing. For ENCE majors only. Application of computer-centered techniques to develop, manage, and interpret multi-dimensional data bases required for large scale projects in transportation, water resources, and environmental engineering. Translation of digital format data from remote sensing or conventional sources to quantitative information. Required for spatially distributed simulation models. Use of instructional geographic information systems and image processing software on personal computers.

ENCE 466 Design of Civil Engineering Systems (3) One hour of lecture, four hours of laboratory, and one hour of discussion/recitation per week. For graduating seniors only. For ENCE majors only. A major civil engineering design experience that emphasizes development of student creativity, development and use of design methodologies, evaluation of alternate solutions, feasibility considerations, and detailed system descriptions. Realistic design constraints including economic factors, safety, aesthetics, and reliability will be imposed. Students will work in design project groups and be required to exercise oral and written communication skills.

ENCE 470 Highway Engineering (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: ENCE 370. Location, design, construction and maintenance of roads and pavements. Introduction to traffic engineering.

ENCE 473 Air and Water Transportation Engineering (3) Prerequisite: ENCE 370. Detailed study of the planning, design, construction, operations and maintenance of airports and waterways, emphasis on design and operations of transportation facilities.

ENCE 474 Railroad Mass Transportation Engineering (3) Prerequisite: ENCE 370. Detailed study of the planning, design, construction, operations, and maintenance of railroads and mass transportation systems, emphasis on design and operations of transportation facilities.

ENCE 489 Special Problems in Civil Engineering (1-4) Senior standing. For ENCE majors only. A course arranged to meet the needs of exceptionally well prepared students for study in a particular field of civil engineering.

ENCH — Engineering, Chemical

ENCH 215 Chemical Engineering Analysis (3) Prerequisite: CHEM 104. Pre- or corequisite: MATH 141. Introduction to methods of chemical engineering calculations and analysis. Stoichiometric relations, material and energy balances, and behavior of gases, vapors, liquids and solids. Analytical and computer methods.

ENCH 250 Computer Methods in Chemical Engineering (3) Prerequisites: ENES 101; and ENCH 215. Algorithm development and application of software to the analysis of chemical engineering problems. File management and editing, graphics and numerical methods. Use of spreadsheets, statistics/math software and process simulators for the design of chemical process equipment.

ENCH 300 Chemical Process Thermodynamics (3) Prerequisites: CHEM 203; and ENCH 215; and MATH 241. Principles of thermodynamics and their application to engineering problems. First and second laws of thermodynamics, properties of gases, liquids and solids, phase equilibrium, flow and non-flow systems, energy conversion, production of work from heat, thermodynamic analysis of processes, equilibrium stage operations and the thermodynamics of chemically reacting systems.

ENCH 333 Chemical Engineering Seminar (1) Senior standing. Oral and written reports on recent developments in chemical engineering and the process industries.

ENCH 422 Transport Processes I (3) Prerequisites: MATH 241 and MATH 246 and ENES 110. Macroscopic approach to analysis of heat, mass and momentum transfer. Analogies, laws for conduction and convection. Design applications via differential balances and general balance equations.

ENCH 424 Transport Processes II (3) Prerequisites: ENCH 300 and ENCH 422. Microscopic approach to the analysis of heat, mass and momentum transfer. Integral balances, mechanical energy equation, Bernoulli's equation. Interphase transport. Application to design of process equipment. Radiant heat transfer. Boundary layer analysis and turbulent flow.

ENCH 426 Transport Processes III (3) Prerequisites: ENCH 300 and ENCH 324. Corequisite: ENCH 424. Separation by staged operations. Rate dependent separation processes. Design applications in distillation, gas absorption, liquid extraction, drying, adsorption and ion exchange.

ENCH 437 Chemical Engineering Laboratory (3) Prerequisites: ENCH 426; and ENCH 440; and ENCH 442. Application of chemical engineering process and unit operation principles in small scale semi-commercial equipment. Data from experimental observations are used to evaluate performance and efficiency of operations. Emphasis on correct presentation of results in report form.

ENCH 440 Chemical Engineering Kinetics (3) Prerequisites: ENCH 300; and ENCH 422; and CHEM 481. Fundamentals of chemical reaction kinetics and their application to the design and operation of chemical reactors. Reaction rate theory, homogeneous reactions and catalysis electrochemical reactions. Catalytic reactor design.

ENCH 442 Chemical Engineering Systems Analysis (3) Prerequisites: ENCH 300; and ENCH 422. Dynamic response applied to process systems. Goals and modes of control, Laplace transformations, analysis and synthesis of simple control systems, closed loop response, dynamic testing.

ENCH 444 Process Engineering Economics and Design I (3) Prerequisites: ENCH 426; and ENCH 440; and ENCH 442. Principles of chemical engineering economics and process design. Emphasis on equipment types, equipment design principles, capital cost estimation, operating costs, and profitability.

ENCH 446 Process Engineering Economics and Design II (3) Prerequisite: ENCH 444. Application of chemical engineering principles for the design of chemical processing equipment. Typical problems in the design of chemical plants.

ENCH 450 Chemical Process Development (3) Prerequisite: ENCH 426. Chemical process industries from the standpoint of technology, raw materials, products and processing equipment. Operations of major chemical processes and industries combined with quantitative analysis of process requirements and yields.

ENCH 452 Advanced Chemical Engineering Analysis (3) Prerequisite: ENCH 426. Application of digital and analog computers to chemical engineering problems. Numerical methods, programming, differential equations, curve fitting, amplifiers and analog circuits.

ENCH 453 Applied Mathematics in Chemical Engineering (3) Prerequisite: ENCH 425. Mathematical techniques applied to the analysis and solution of chemical engineering problems. Use of differentiation, integration, differential equations, partial differential equations and integral transforms. Application of infinite series, numerical and statistical methods.

ENCH 454 Chemical Process Analysis and Optimization (3) Prerequisites: ENCH 426; and ENCH 440. Applications of mathematical models to the analysis and optimization of chemical processes. Models based on transport, chemical kinetics and other chemical engineering principles will be employed. Emphasis on evaluation of process alternatives.

ENCH 468 Research (1-3) Prerequisite: permission of both department and instructor. Repeatable to 6 credits. Investigation of a research project under the direction of a faculty member. Comprehensive reports are required.

ENCH 482 Biochemical Engineering (3) Prerequisite: senior standing in engineering or permission of both department and instructor. Introduction to biochemical and microbiological applications to commercial and engineering processes, including industrial fermentation, enzymology, ultrafiltration, food and pharmaceutical processing and resulting waste treatment. Enzyme kinetics, cell growth, energetics and mass transfer.

ENCH 485 Biochemical Engineering Laboratory (2) Pre- or corequisite: ENCH 482. Techniques of measuring pertinent parameters in fermentation reactors, quantification of production variables for primary and secondary metabolites such as enzymes and antibiotics, the insolubilization of enzymes for reactors, and the demonstration of separation techniques such as ultrafiltration and affinity chromatography.

ENCH 490 Introduction to Polymer Science (3) Prerequisite: ENCH 422. The elements of the chemistry, physics, processing methods, and engineering applications of polymers.

ENCH 494 Polymer Technology Laboratory (3) One hour of lecture and two hours of laboratory per week. Prerequisite: ENCH 490 or ENCH 492. Measurement of mechanical, electrical, optical, thermal properties of polymers, measurement of molecular weight by viscometry isometric and light scattering methods. Application of X-ray, NMR, ESR, spectroscopy molecular relaxation, microscopy and electron microscopy to the determination of polymer structure, effects of ultraviolet light and high energy radiation.

ENCH 496 Processing of Polymer Materials (3) Prerequisite: ENCH 490 or ENCH 492. Credit will be granted for only one of the following: ENCH 496 or ENMA 496. A comprehensive analysis of the operations carried out on polymeric materials to increase their utility. Conversion operations such as molding, extrusion, blending, film forming, and calendering. Development of engineering skills required to practice in the high polymer industry.

ENCO — Engineering, Cooperative Education

ENCO 098 Summer Co-Op Work Experience (0) Prerequisite: successful completion of freshman and sophomore engineering requirements. Through alternate semesters of full-time work and full-time study. Co-op provides students with a year of practical work experience related to their major. Students should register for ENCO 098 if they are working during a summer semester.

ENCO 099 Co-Op Work Experience (0) Prerequisite: successful completion of freshman and sophomore engineering requirements. Through alternating semesters of full-time and full-time study, Co-op provides students with a year of practical work experience related to their major. Students must register for ENCO 099 if they are working fall or spring semesters.

ENEE — Engineering, Electrical

ENEE 204 Basic Circuit Theory (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: MATH 246. Basic circuit elements: resistors, capacitors, inductors, sources, mutual inductance and transformers; their I-V relationships. Kirchoff's Laws. DC and AC steady state analysis. Phasors, node and mesh analysis, superposition, theorems of Thevenin and Norton. Transient analysis for first- and second-order circuits.

ENEE 244 Digital Logic Design (3) Three hours of lecture and one hour of discussion/recitation per week. Prerequisite: ENES 240. Gates, flip-flops, registers and counters. Karnaugh map simplification of gate networks. Switching algebra. Synchronous sequential systems. PLA's. Elements of binary arithmetic units.

ENEE 300 Principles of Electrical Engineering (3) Prerequisites: MATH 241, PHYS 263. Corequisite: ENEE 301. Required of aerospace, mechanical and chemical engineers. Not applicable in the electrical engineering major program. Acceptable as prerequisite for some advanced ENEE courses. Analysis of linear systems, introduction to Laplace transforms, steady-state A-C transforms, introduction to the concepts of electromagnetic fields and electric machines.

ENEE 301 Electrical Engineering Laboratory (1) Two hours of laboratory per week. Corequisite: ENEE 300. Experiments on the transient and steady-state response of linear circuits, electric machines, electron tubes and semiconductor devices. All lower-division CHEM, MATH, PHYS and Engineering courses that are required courses for the BS degree in Electrical Engineering must be completed before enrolling in any 300- or 400- ENEE course (except ENEE 300 and ENEE 301). Transfer students will be allowed one term to complete all such courses after starting to take upper-level ENEE courses.

ENEE 302 Analog Electronic Circuits (3) Prerequisite: ENEE 204 and completion of all lower-division courses in the EE curriculum. See above note. Basic electronics elements (diodes, bipolar transistors, MOSFETs) their characteristics and principles of operation. Small signal analysis. Circuit models with controlled sources. Diode circuits. Low-frequency amplifiers and feedback. Frequency response of amplifiers. Operational amplifiers and their applications. Wave-shaping and waveform generators. Elements of power electronics.

ENEE 305 Fundamental Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE 204 and completion of all lower-division technical courses in the EE curriculum. See above note. This course is prerequisite to all ENEE 400-level laboratory courses. Concepts and techniques of physical measurements using standard electrical measuring devices: generators, oscilloscopes, voltmeters, etc. Measurements of linear and non-linear circuits; steady state and step response; integrated circuits. Handling and use of data.

ENEE 312 Digital Electronic Circuits (3) Prerequisite: ENEE 302 and completion of all lower-division technical courses in the EE curriculum. See above note. Review of basic semiconductor devices and technology. Inverters, gates and logic families. Analysis and design of combinational circuits (adder, comparator, encoder/decoder). Memories. Analysis and design of sequential circuits (flip-fops, registers, counters). Large scale integrated systems (dynamic MOS registers, EPROMs, PLA, CCDs). Analog-to-digital converters. Elements of CAD, including use of the SPICE computer package.

ENEE 322 Signal and System Theory (3) Prerequisites: ENEE 204 and MATH 246 and completion of all lower-division technical courses in the curriculum. See above note. Concept of linear systems, state space equations for continuous and discrete systems, time domain analysis of linear systems. Fourier, Laplace and Z transforms. Application of theory to problems in electrical engineering.

ENEE 324 Engineering Probability (3) Prerequisite: ENEE 322 and completion of all lower-division technical courses in the EE curriculum. See above note. Axioms of probability; conditional probability and Bayes' rules; random variables, probability distribution and densities; functions of random variables; weak law of large numbers and central limit theorem. Introduction to random processes; correlation functions, spectral densities, and linear systems. Applications to noise in electrical systems, filtering of signals from noise, estimation, and digital communications.

ENEE 350 Computer Organization (3) Prerequisite: ENEE 244 and completion of all lower-division technical courses in the EE curriculum. See above note. Not open to students who have completed ENEE 250. Formerly ENEE 250. Structure and organization of digital computers. Registers, memory, control and I/O. Data and instruction formats, addressing modes, assembly language programming. Elements of system software, subroutines and their linkages.

ENEE 380 Electromagnetic Theory (3) Prerequisites: MATH 241 and PHYS 263 and completion of all lower-division technical courses in the EE curriculum. See above note. Introduction to electromagnetic fields. Coulomb's law, Gauss's law, electrical potential, dielectric materials capacitance, boundary value problems, Biot-Savart law, Ampere's law, Lorentz force equation, magnetic materials, magnetic circuits, inductance, time varying fields and Maxwell's equations.

ENEE 381 Electromagnetic Wave Propagation (3) Prerequisite: ENEE 380 and completion of all lower-division technical courses in the EE curriculum. See above note. Review of Maxwell's equations; the wave equation, potentials, Poynting's theorem. Transmission, lossy medium, skin effect. Parallel-plate and rectangular wave-guides. Radiation, retarded potentials, radiation from dipole.

ENEE 407 Microwave-Circuits Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisites: ENEE 305 and 381 and completion of all lower-division technical courses in the EE curriculum. See above note. Experiments concerned with circuits constructed from microwave components providing practical experience in the design, construction and testing of such circuits. Projects include microwave filters and S-parameter design with applications of current technology.

ENEE 413 Electronics Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE 305 and ENEE 314 and completion of all lower-division technical courses in the EE curriculum. See above note. The specification, design and testing of basic electronic circuits and practical interconnections. Emphasis on design with discrete solid state and integrated circuit components for both analog and digital circuits.

ENEE 418 Projects in Electrical Engineering (1-3) Hours to be arranged. Prerequisites: permission of instructor and department and completion of all lower-division technical courses in the EE curriculum. See above note. Theoretical and experimental projects.

ENEE 420 Communication Systems (3) Prerequisite: ENEE 324 and completion of all lower-division technical courses in the EE curriculum. See above note. Fourier series, Fourier transforms and linear system analysis; random signals, autocorrelation functions and power spectral densities; analog communication systems: amplitude modulation, single-sideband modulation, frequency and phase modulation, sampling theorem and pulse-amplitude modulation; digital communication systems pulse-code modulation, phase-shift keying, differential phase shift keying, frequency shift keying; performance of analog and digital communication systems in the presence of noise.

ENEE 421 Information Theory and Coding (3) Prerequisite: ENEE 324 and completion of all lower-division technical courses in the EE curriculum. See above note. Definition of information and entropy; Memoryless and Markov sources; source coding, Kraft and MacMillan inequalities; Shannon's first theorem; Hoffman Codes; Channels, Mutual Information, and Capacity; Shannon's Noisy Channel Coding Theorem; Error Correcting Codes.

ENEE 425 Digital Signal Processing (3) Prerequisite: ENEE 322 and completion of all lower-division technical courses in the EE curriculum. See above note. Sampling as a modulation process; aliasing, the sampling theorem; the Z-transform and discrete-time system analysis; direct and computer-aided design of recursive and nonrecursive digital filters; the Discrete Fourier Transform (DFT) and Fast Fourier Transform (FFT); digital filtering using the FFT, analog-to-digital and digital-to analog conversion, effects of quantization and finite-word-length arithmetic

ENEE 426 Communication Networks (3) Prerequisite: permission of department and completion of all lower-division technical courses in the EE curriculum. See above note. The main design issues associated with ordinary, single-user, point-to-point communication systems and their juxtaposition to those involved in multi-user systems such as computer networks, satellite systems, radio nets, and general communication networks. Application of analytical tools of queueing theory to design problems in such networks. Review of proposed architectures and protocols

ENEE 434 Introduction to Neural Networks and Signals (3) Prerequisite: ENEE 204 or ENEE 300 and completion of all lower-division technical courses in the EE curriculum. See above note. Introduction in the generation and processing of bioelectric signals including structure and function of the neuron, membrane theory, generation and propagation of nerve impulses, synaptic mechanisms, transduction and neural coding of sensory events, central nervous system processing of sensory information and correlated electrical signals, control of effector organs, muscle contraction and mechanics, and models of neurons and neural networks. course in

ENEE 435 Electrodes and Electrical Processes in Biology and Medicine (3) Prerequisite: ENEE 204 or ENEE 300 and completion of all lower-division technical courses in the EE curriculum. See above note. Techniques for recording biological signals such as brain, muscle and cardial electrical potentials; membrane theory: half-cell potentials, liquid junction potentials, polarization of electrodes; biological and medical instrumentation; and applications in the design of cardial pacemakers, or a similar case study

ENEE 438 Topics in Biomedical Engineering (1-3) Prerequisite: permission of department and completion of all lower-division technical courses in the EE curriculum. See above note. Repeatable to 9 credits The content may vary from semester to semester. Selected topics of current interest from such areas as bioelectric systems, modeling instrumentation, automated diagnostic, health-care delivery, etc.

ENEE 440 Microprocessors (3) Prerequisite: ENEE 250 and completion of all lower-division technical courses in the EE curriculum. See above note. Microprocessor architectures, instruction sets, and applications. Bus structures, memory, I/O interfacing. Programming, and the embedding of microprocessors in other systems.

ENEE 442 Software Engineering (3) Prerequisites: ENES 240; ENEE 250 or equivalent and completion of all lower-division technical courses in the EE curriculum. See above note. Architectural aspects of software engineering. Machine language and machine structure; assembly language and assemblers, macro-language and macro-processors, loaders and linkers; programming languages and language structure, compilers and interpreters; operating systems

ENEE 444 Logic Design of Digital Systems (3) Prerequisite ENEE 250 and completion of all lower-division technical courses in the EE curriculum. See above note. Not open to students who have completed ENEE 244 Review of switching algebra, gates and logic modules, map simplification techniques: multiple-output systems, memory elements and sequential systems: large switching systems; iterative networks; sample designs, computer oriented simplification algorithms; state assignment, partition techniques; sequential system decompositions

ENEE 445 Computer Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE 305 and ENEE 440 or ENEE 444 and completion of all lower-division technical course in the EE curriculum. See above note. Hardware oriented experiments providing practical experience in the design, construction, and checkout of components and interfaces for digital computers and data transmission systems. Projects include classical design techniques and applications of current technology.

ENEE 446 Digital Computer Design (3) Prerequisite: ENEE 250 and completion of all lower-division technical courses in the EE curriculum. See above note. Hardware design of digital computers. Arithmetic and logic units, adders, multipliers and dividers. Floating-point arithmetic units. Bus and register structures. Control units, both hardwired and microprogrammed. Index registers, stacks, and other addressing schemes. Interrupts, DMA and interfacing

ENEE 450 Discrete Structures (3) Prerequisite: ENEE 350 and completion of all lower-division technical courses in the EE curriculum. See above note. Modern algebra with applications to computer and communications hardware. Relations, mappings, groups, rings and fields. Boolean algebras and lattice theory. Applications to digital logic design, computer arithmetic and error-correcting codes.

ENEE 460 Control Systems (3) Prerequisite: ENEE 322 and completion of all lower-division technical courses in the EE curriculum. See above note. Mathematical models for control system components. Transform and time domain methods for linear control systems. Introductory stability theory. Root locus, Bode diagrams and Nyquist plots. Design specifications in the time and frequency domains. Compensation design in the time and frequency domain. Introduction to sampled data systems. Introduction to computer aided design of control systems.

ENEE 461 Control Systems Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisites: ENEE 305 and ENEE 460 and completion of all lower-division technical courses in the EE curriculum. See above note. Projects to enhance the student's understanding of feedback control systems and to familiarize him with the characteristics and limitations of real control devices. Students will design, build, and test servomechanisms, and will conduct analog and hybrid computer simulations of control systems.

ENEE 462 Systems, Control and Computation (3) Prerequisite: ENEE 322 and completion of all lower-division technical courses in the EE curriculum. See above note. Matrix algebra, state space analysis of discrete systems, state space analysis of continuous systems, computer algorithms for circuit analysis, optimization and system simulation.

ENEE 472 Electric Power System Components (3) Prerequisite: ENEE 322; and ENEE 380; and completion of all lower-division technical courses in the EE curriculum. See above note. Linear and nonlinear magnetic circuits, hysteresis and eddy current losses, transformers, induction motors, synchronous generators.

ENEE 473 Electrical Machines Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisite: ENEE 305 and completion of all lower-division technical courses in the EE curriculum. See above note. Experiments involving single and three phase transformers, induction machines, synchronous machines and D.C. machines.

ENEE 474 Power Systems (3) Prerequisite: ENEE 322 and completion of all lower-division technical in the EE curriculum. See above note. Interconnected power systems, transmission lines, load flow studies, unit commitment and economic dispatch. Three phase networks, machine models. Symmetrical components, fault analysis and unbalanced operation. Power system transients, stability and numerical methods in power system analysis.

ENEE 475 Power Electronics (3) Prerequisite: ENEE 302 and completion of all lower-division technical courses in the EE curriculum. See above note. Analytical methods, canonical circuit topologies, fundamentals of power semiconductors, snubbing circuits, drive circuits, fundamentals of control methods.

ENEE 476 Power System Stability (3) Prerequisite: ENEE 322 and completion of all lower-division technical courses in the EE curriculum. See above note. Power system modeling, the swing equation. Lyapunov stability analysis. Construction of Lyapunov, or energy, function. The equal-area criterion. Critical clearing time. Potential energy boundry surface method. Emergency control. Recent developments.

ENEE 480 Fundamentals of Solid State Electronics (3) Prerequisite: ENEE 381 and completion of all lower-division technical courses in the EE curriculum. See above note. Review of Maxwell's equation, electromagnetic properties of dielectrics; introduction to quantum mechanics and quantum statistics; classical and quantum theory of metals; theory of semiconductors and semiconductor devices; principle of magnetic devices and selected topics.

ENEE 481 Antennes (3) Prerequisite: ENEE 381 and completion of all lower-division technical courses in the EE curriculum. See above note. Introduction to the concepts of radiation, generalized far field formulas; antenna theorems and fundamentals; antenna arrays, linear and planar arrays; aperture antennas; terminal impedance; propagation.

ENEE 482 Design of Active and Passive Microwave Devices (3) Prerequisite: ENEE 381 and completion of all lower-division technical courses in the EE curriculum. See above note. Design and operation of passive and active microwave devices. The passive components include waveguides, resonators, and antennas. The active devices include klystrons, magnetrons, gyrotrons, and free electron lasers.

ENEE 483 Electromagnetic Measurements Laboratory (2) One hour of lecture and three hours of laboratory per week. Prerequisites: ENEE 305 and ENEE 380 and completion of all lower-division technical courses in the EE curriculum. See above note. Experiments designed to provide familiarity with a large class of micro-wave and optical components, techniques for interconnecting them into useful systems, and techniques of high frequency and optical measurements.

ENEE 488 Topics in Electrical Engineering (3) Prerequisite: permission of department and completion of all lower-division technical courses in the EE curriculum. See above note. Selected topics of current importance in electrical engineering.

ENEE 494 Solid State Devices (3) Prerequisite: ENEE 302 and completion of all lower-division technical courses in the EE curriculum. See above note. Introduction to semiconductor materials; p-n junctions; metal-semiconductor contacts; bipolar transistors, insulated gate field effect transistors; and related selected topics.

ENEE 496 Lasers and Electro-optic Devices (3) Pre-or corequisite: ENEE 381. Completion of all lower-division technical courses in the EE curriculum. See above note. Optical resonators, fabry-perot etalon. Theory of laser oscillation, rate equations. Gaseous, solid state, semiconductor and dye laser systems. Electro-optic effects and parametric oscillators. Holography.

ENES — Engineering Science

ENES 100 Introduction to Engineering Design (2) One hour of lecture and two hours of laboratory per week. Students work as teams to design and build a product using computer software for wordprocessing, spreadsheet, CAD, and communication skills.

ENES 101 Introductory Engineering Science (3) Two hours of lecture and two hours of discussion/recitation per week. For engineering majors only. Basic languages of the engineer. Elements of graphic communication and analysis. Orthrographic projection, conventions, graphs and curve-fitting. Introduction to structured computer programming. Engineering orientation.

ENES 102 Statics (2) For engineering majors only. Formerly ENES 110. The equilibrium of stationary bodies under the influence of various kinds of forces. Forces, moments, couples, equilibrium, trusses, frames and machines, beams, and friction. Vector and scalar methods are used to solve problems.

ENES 103 FORTRAN for Engineers (1) For engineering majors only. Fundamentals of FORTRAN as applied to engineering problems.

ENES 105 How Things Work: Basic Technological Literacy (3) Prerequisite: MATH 001 or high school equivalent. An introduction to technology for non-technical majors. Structure of matter, electronic materials, electricity and electric circuits, electronic components including diodes and transistors, digital circuits and devices, computers, communication systems, radar and other modern technological devices.

ENES 121 The World of Engineering (3) Introduction to engineering and its influence on the way we live. Study of the conception, design, and operation of engineering systems from the past to the present and a look into the future.

ENES 131 Introduction to Flight (3) An elementary course in aeronautics appropriate for both science and non-science students. The elements of flight as exemplified by the flight of birds and the historical development of the airplane. Navigation and control of the aircraft, weather as it affects aviation, flight instruments, and the operation of the U.S. Civil Aviation System.

ENES 220 Mechanics of Materials (4) Prerequisites: MATH 141; and PHYS 161; and ENES 102 or ENES 110. For engineering majors only (not including ENEE majors). Distortion of engineering materials in relation to changes in stress or temperature. Geometry of material strain and external displacement. Centroids, moments of inertia. Determinate and indeterminate analysis and applications to beams, columns, shafts, and other structural members.

ENES 221 Dynamics (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: ENES 102 or ENES 110; and MATH 141; and PHYS 161. Systems of heavy particles and rigid bodies at rest and in motion. Force- acceleration, work-energy and impulse-momentum relationships. Motion of one body relative to another in a plane and in space.

ENES 230 Introduction to Materials and their Applications (3) Prerequisite: ENES 102 or ENES 110. Structure of materials, chemical composition, phase transformations, corrosion and mechanical properties of metals, ceramics, polymers and related materials. Material selection in engineering applications.

ENES 240 Engineering Computation (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: MATH 141. Introduction to the design and implementation of algorithms to solve engineering problems using digital computers. Analysis of problems fundamental to engineering design, construction and diagrammatic description of effective procedures for solving them and implementing and testing of these solutions in a common high-level engineering oriented language such as FORTRAN. Techniques for data input and storage, selection of relevant numerical and non-numerical methods for problem solutions, and the efficient ordering of data for meaningful output presentation.

ENES 388 Engineering Honors Seminar (1)

ENES 389 Selected Topics (3) Repeatable to 6 credits if content differs.

ENES 405 Power and the Environment (3) Intended for seniors not majoring in engineering. Not applicable as a technical elective for engineering majors. An introduction to the power needs of society. The interrelationship between man's use of energy and the effect on the eco-system. Introduction to the techniques of power production with special emphasis on nuclear-fueled power plants.

ENES 498V Special Studies: Computers and the Law (3)

ENES 508 Engineering Professional Development for Teachers (1-6) Two hours of lecture and three hours of laboratory per week. Prerequisite: pd. For non-engineering majors only. Repeatable to 6 credits if content differs. An introduction to the fundamental concepts that underlie engineering and the process that engineers use in solving technological problems and in design work. Problems in experimental analysis are demonstrated through laboratory experiments. The laboratory work provides the basis for introductory design.

ENFP — Engineering, Fire Protection

ENFP 251 Introduction to Fire Protection Engineering (3) The social, economic, environmental and legal dimensions of the fire problem. The theoretical and engineering principles of basic fire phenomena. Technological assessment of urban fire protection utilizing operations research and systems engineering procedures.

ENFP 290 Fire Protection Fluids (3) Fluid flow principles for fire protection systems. Hydrostatic and hydrodynamic problems associated with water supply systems. Calculation methods, techniques and procedures for hydraulically designed distribution networks to meet prescribed conditions of adequacy and reliability of the total system.

ENFP 310 Fire Protection Systems Design I (3) Prerequisite: ENFP 290. Study of aqueous suppression system agents and their application to selected fire protection problems. Examination of specifications, code criteria, published criteria and research utilized in the engineering design of aqueous agent suppression systems. Application of hydraulic theory to a range of design considerations. Problem calculations based upon student prepared design layouts.

ENFP 312 Heat Transfer Applications in Fire Protection (3) Prerequisites: CMSC 110 and ENES 240; or ENME 320; or ENME 217. The principles of heat transfer. Application of the governing equations for conduction, convection and radiation heat transfer to fire protection problems. Analysis of the concepts of combustion with the chemical and physical components. Discussion and study of ignition, propagation and explosion phenomena.

ENFP 315 Fire Protection Systems Design II (3) Prerequisites: ENFP 290; and ENFP 310. Study of gaseous and particulate fire suppression systems. Examination and evaluation of code criteria, performance specifications and research. Application of fluid theory to the design process and the calculation procedures for gaseous particulate fire suppression systems. An integrated fire protection systems design project. Functional analysis and design of detection systems.

ENFP 320 Pyrometrics of Materials (3) Analysis and study of characteristics of materials, and material assemblies related to flame spread, fuel contribution, combustibility and smoke development. Analysis of fuel geometry and configuration to fire severity. Procedures of laboratory analysis, determination and modeling.

ENFP 411 Fire Protection Hazard Analysis (3) Prerequisites: ENFP 251; and ENFP 315. Appraisal and measurement of fire safety. Application of systems analysis, probability theory, engineering economy, and risk management in the identification and synthesis of components of fire protection engineering. Methods for the development of criteria for the design, evaluation and assessment of fire safety or component hazards.

ENFP 415 Fire Dynamics (3) Prerequisites: ENCH 300 or ENME 320; and ENCE 330 or ENME 342; and ENFP 312 or permission of department. Introduction to premixed and diffusion flames; ignition, flame spread and rate of burning; fire plumes; flame radiation.

ENFP 416 Problem Synthesis and Design (3) Senior standing. Techniques and procedures of problem orientation and solution design utilizing logical and numerical procedures. Student development of research projects in selected areas.

ENFP 421 Functional and Life Safety Analysis (3) Prerequisites: ENFP 320; and ENFP 315. The function and life safety components of buildings. Analytical concepts and research related to modular loss analysis. The physical and psychological variables of fire casualties using techniques of system analysis. Current research related to egress and smoke movement. Performance criteria of building and fire prevention codes.

ENFP 489 Special Topics (3) Prerequisite: permission of department. Repeatable to 6 credits. Selected topics of current importance to fire protection.

ENGL — English

ENGL 101 Introduction to Writing (3) An introductory course in expository writing.

ENGL 102 Literature and Composition (3) Open to students who have passed or are exempted from ENGL 101. Further practice in writing, along with readings in the short story, novel, poetry, and drama.

ENGL 201 Western World Literature, Homer to the Renaissance (3) Homer to the Renaissance, foreign classics being read in translation.

ENGL 202 Western World Literature, Renaissance to the Present (3) Shakespeare to the present, foreign classics being read in translation.

ENGL 205 Introduction to Shakespeare (3) Recommended for non-majors. Reading of selected representative plays including the major tragedies.

ENGL 211 English Literature From the Beginnings to 1800 (3)

ENGL 212 English Literature From 1800 to the Present (3)

ENGL 221 American Literature: Beginning to 1865 (3)

ENGL 222 American Literature: 1865 to Present (3)

ENGL 234 Introduction to African-American Literature (3) A survey of African-American literature from the late eighteenth century to the present.

ENGL 240 Introduction to Fiction, Poetry, and Drama (3) Not open to students who have completed ENGL 102. Readings in the novel, short story, poetry and drama.

ENGL 241 Introduction to the Novel (3)

ENGL 242 Introduction to Non-Fiction Prose (3) Contemporary and historical works in some of the major genres of non-fiction: biography, ecology, science writing, editorial, cultural commentary. The purposes of non-fiction (information, persuasion, analysis, and commentary); the research and writing methods of non-fiction writers; and the impact and value of non-fiction works in society.

ENGL 243 Introduction to Poetry (3)

ENGL 244 Introduction to Drama (3) A survey of the basic literature of drama from the classical Greeks to modern times.

ENGL 245 Film and the Narrative Tradition (3) Primary attention is on the film as a narrative medium, but other literary models will be examined.

ENGL 246 The Short Story (3)

ENGL 247 Literature of Fantasy (3) Reading and analysis of various works of non-realistic literature broadly termed "fantasy".

ENGL 250 Introduction to Literature by Women (3) Images of women in literature by and about women.

ENGL 260 Introduction to Folklore (3) Not open to students who have completed ENGL 360. History, theory, and genres of folklore.

ENGL 277 Mythologies: An Introduction (3) Introduction to the myths of Europe, Asia, Oceania, the Middle East, Africa and North and South America.

ENGL 278 Special Topics in Literature (3) Repeatable to 9 credits if content differs.

ENGL 281 Standard English Grammar, Usage, and Diction (3) The basic structure of written English, including parts of speech, sentence patterns, standard punctuation, diction, and usage.

ENGL 291 Intermediate Writing (3) Writing essays, the revision process, and editing techniques.

ENGL 294 Introduction to Creative Writing (3) Sophomore standing.

ENGL 296 Beginning Fiction Workshop (3) Introduction to different aspects of the craft of fiction, such as narration, description, and dramatic development. Models taken from the entire range of the genre. Selected readings.

ENGL 297 Beginning Poetry Workshop (3) Introduction to different aspects of the craft of poetry, such as image, metaphor, rhythm, tone, and form. Models taken from the range of genre. Selected readings.

ENGL 300 and 400 level course prerequisites: any two freshman or sophomore English courses.

ENGL 301 Critical Methods in the Study of Literature (3) For English and English education majors only. An introduction to the techniques of literary analysis and a brief survey of the most common approaches to literature.

ENGL 302 English Medieval Literature in Translation (3)

ENGL 304 The Major Works of Shakespeare (3) Not open to students who have completed ENGL 403 and ENGL 404

ENGL 305 Shakespeare and His Contemporaries: An Introduction (3) An introduction to the plays of Shakespeare and those of several of his contemporaries. The course emphasizes a reading of eight to ten plays in the context of the development of the drama in England and of the pertinent Elizabethan theatrical, social, intellectual, and political circumstances.

ENGL 310 Medieval and Renaissance British Literature (3) A perspective on the cultural attitudes and values that separate the Middle Ages from the Renaissance, highlighting the changing role and purpose of the writer. Major works and authors include Beowulf, Chaucer, Spenser, and Sidney.

ENGL 311 Baroque and Augustan British Literature (3) An intensive study of major works of seventeenth and eighteenth century English literature exploring the variety of artistic ideas and techniques of the period.

ENGL 312 Romantic to Modern British Literature (3) An intensive study of major works of nineteenth and twentieth century English literature.

ENGL 313 American Literature (3) A detailed study of selected major texts of American literature from the 17th to the 20th century, including women's literature, black literature, and literature from various regions of the country.

ENGL 320 English Romantic Literature (3) Prerequisite: two college-level literature courses. Credit will be granted for only one of the following: ENGL 320 and ENGL 420 or ENGL 320 and ENGL 421. Survey of fiction, poetry, and criticism. Emphasis on shifts in thinking from rationalism of the Enlightenment to the romanticism of the nineteenth century.

ENGL 345 Twentieth Century Poetry (3) Not open to students who have completed ENGL 445 or ENGL 446. A one-semester survey course in British and American poetry from Yeats and Robinson to the present. Special emphasis on Yeats, Pound, Eliot, Williams, Roethke, and Lowell.

ENGL 348 Literary Works by Women (3) Repeatable to 6 credits if content differs. The context, form, style and meaning of literary works by women.

ENGL 360 African, Indian and Caribbean Writers (3) Selected writers from countries formerly colonies of Britain, France, Denmark, etc. Attention to ways regions have developed distinctive political and aesthetic values resulting from indigenous traditions and foreign influences.

ENGL 362 Caribbean Literature in English (3) Political and literary traditions that intersect in the fiction, poetry, and drama written in English by Caribbean writers, primarily during the 20th century.

ENGL 368 Special Topics in the Literature of Africa and the African Diaspora (3) Repeatable to 9 credits if content differs. Comparisons among the literary traditions in Africa, the Caribbean, and North and South America.

ENGL 369 Honors Seminar: Major Traditions (4-5) Prerequisite: permission of department. Intensive study of major English and American literary classics in their generic context of narrative and lyric poetry, drama, prose, fiction and non-fiction from the beginnings to the present.

ENGL 370 Junior Honors Conference (1) Prerequisite: candidacy for honors in English. Preparation for writing the senior honors project.

ENGL 371 Senior Honors Conference (1) Prerequisite: candidacy for honors in English. Presentation and discussion of senior honors projects.

ENGL 373 Honors Thesis (3) Prerequisite: candidacy for honors in English. Research and writing of senior

honors project. Strongly recommended for students planning graduate work.

ENGL 377 Medieval Myth and Modern Narrative (3) Not open to students who have completed ENGL 361. Formerly ENGL 361. Literary patterns characteristic of medieval myth, epic, and romance; their continuing vitality in modern works; and links between Medieval works like "The Prose Edda", "Beowulf", "The Morte D'Arthur", "The Volsunga Saga", and "Grettis Saga" and modern narratives like Tolkien's "The Lord of the Rings".

ENGL 378 Independent Research in English (1-6) Prerequisite: permission of department. Repeatable to 6 credits. Designed to provide qualified majors in English an opportunity to pursue specific English readings under the supervision of a member of the department.

ENGL 379 Special Topics in Literature (3) English majors may not count credits earned in this course toward the total required for the major. Repeatable to 9 credits if content differs.

ENGL 380 Internship (3-6) Prerequisite: pd. The English Department's internship program. Preprofessional experience in writing and editing in a variety of fields.

ENGL 381 MGA Legislative Seminar (3) Prerequisite: permission of department. Classroom analysis component of the Maryland General Assembly internship program.

ENGL 383 The Uses of Language (3) Exploration of the social and political aspects of language use, including conversational behavior, persuasive uses of language, social dialects, and language and gender; and analytical methods of pragmatics/ discourse analysis.

ENGL 384 Concepts of Grammar (3) Prerequisite: ENGL 281 or equivalent. Introduction to the basic units of grammatical description; motivation for and nature of constituent structure and syntactic categories; fundamental grammatical concepts employed in the teaching and learning of languages.

ENGL 385 English Semantics (3) An introductory study of meaning in language and paralanguage. General semantics, kinesics, linguistic relativity and recent developments in linguistic semantics.

ENGL 391 Advanced Composition (3) Prerequisite: 56 hours of college credit which must include ENGL 101 or equivalent. An advanced composition course which emphasizes constructing written arguments accommodated to real audiences.

ENGL 392 Advanced Composition: Pre-Law (3) Prerequisite: 56 hours of college credit which must include ENGL 101 or equivalent. Techniques of argumentation and persuasion. Intensive practice to help writers achieve stylistic flexibility and correctness.

ENGL 393 Technical Writing (3) Prerequisite: 56 hours of college credit which must include ENGL 101 or equivalent. The writing of technical papers and reports.

ENGL 394 Business Writing (3) Prerequisite: 56 hours of college credit which must include ENGL 101 or equivalent. Intensive practice in the forms of written communication common in the business world--letters, memos, short reports, and proposals. Principles of rhetoric and effective style.

ENGL 395 Technical Writing: Pre-Medical (3) Prerequisite: 56 hours of college credit which must include ENGL 101 or equivalent. Focus on accommodating technical material and empirical studies to lay audiences, and helping writers to achieve stylistic flexibility and correctness.

ENGL 396 Intermediate Fiction Workshop (3) Prerequisite: permission of department. Instruction in and development of basic fiction-writing skills. The process of revision, and the writing of longer projects such as stories, novellas, and novels. Voice, style and subject. Intensive reading and discussion of modern and contemporary fiction.

ENGL 397 Intermediate Poetry Workshop (3) Prerequisite: permission of department. Instruction in and development of basic writing skills. The process of revision. Voice, style, and subject. Intensive reading and discussion of modern and contemporary poetry within the context of the tradition.

ENGL 399 Senior Seminar (3) Limited to graduating English majors, to be taken in the last year and preferably the last semester of the undergraduate program, normally following completion of the core courses. Topics will vary each semester; most will be interdisciplinary or will cross historical periods. The course will provide a seminar experience in material or methodologies not otherwise available to the major.

ENGL 402 Chaucer (3) ENGL 403 Shakespeare (3) Early period -- histories and comedies.

ENGL 404 Shakespeare (3) Late penod -- tragedies and romances.

ENGL 408 Literature by Women Before 1800 (3) Repeatable to 9 credits if content differs. Selected writings by women in the medieval and early modern era.

ENGL 410 Edmund Spenser (3)

ENGL 412 Literature of the Seventeenth Century, 1660-1700 (3) Prerequisite: two literature courses.

ENGL 414 Milton (3)

ENGL 415 Literature of the Seventeenth Century, 1660-1700 (3)

ENGL 416 Literature of the Eighteenth Century (3) Age of Pope and Swift.

ENGL 417 Literature of the Eighteenth Century (3) Age of Johnson and the Preromantics.

ENGL 418 Major British Writers (3) Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

ENGL 419 Major British Writers (3) Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

ENGL 420 Literature of the Romantic Period I (3) Credit will be granted for only one of the following: either ENGL 320 or ENGL 420; or ENGL 320 or ENGL 421. First generation: Blake, Wordsworth, Coleridge, et al.

ENGL 421 Literature of the Romantic Period (3) Credit will be granted for only one of the following: either ENGL 320 or ENGL 420; or ENGL 320 or ENGL 421. Second generation: Keats, Shelley, Byron, et al.

ENGL 422 Literature of the Victorian Period (3) Early years.

ENGL 423 Literature of the Victorian Period (3) Middle years.

ENGL 424 Late Victorian and Edwardian Literature (3) A study of the literary movements and techniques which effected the transition from Victorian to modern literature.

ENGL 425 Modern British Literature (3) An historical survey of the major writers and literary movements in English prose and poetry since 1900.

ENGL 430 American Literature, Beginning to 1810, the Colonial and Federal Periods (3)

ENGL 431 American Literature, 1810 to 1865, the American Renaissance (3)

ENGL 432 American Literature, 1865 to 1914, Realism and Naturalism (3) Prerequisite: two literature courses.

ENGL 433 American Literature, 1914 to the Present, the Modern Period (3)

ENGL 434 American Drama (3)

ENGL 435 American Poetry: Beginning to the Present (3)

ENGL 437 Contemporary American Literature (3) A survey of the poetry, prose, and drama written in America in the last decade.

ENGL 438 Major American Writers Before 1865 (3) Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

ENGL 439 Major American Writers After 1865 (3) Repeatable to 9 credits if content differs. Two writers studied intensively each semester.

ENGL 440 The Novel in America to 1910 (3)

ENGL 441 The Novel in America Since 1910 (3)

ENGL 442 Literature of the South (3) A historical survey, from eighteenth-century beginnings to the present.

ENGL 443 Afro-American Literature (3) An examination of the literary expression of the black American in the United States, from its beginning to the present.

ENGL 444 Feminist Critical Theory (3) Prerequisite: ENGL 250 or WMST 200 or WMST 250. Issues in contemporary feminist thought that have particular relevance to textual studies, such as theories of language, literature, culture, interpretation, and identity

ENGL 445 Modern British and American Poetry (3) Prerequisite: permission of department required for students with credit in ENGL 345. A study of the formation of the "Modern Tradition" in British and American poetry, exploring the distinctive energy and consciousness in the poets of the early twentieth century (1896-1930). Special emphasis on Hopkins, Yeats, Pound, Eliot, and Stevens. Collateral readings in essays on modern poetics, and in other poets of the period.

ENGL 446 Contemporary British and American Poetry (3) Prerequisite: permission of department required for students with credit in ENGL 345. A study of British and American poetry from the Depression to the present. Special emphasis on Auden, Williams, Dylan Thomas, Theodore Roethke, Robert Lowell. A more general study of the work of some of these: Berryman, Jarrell, Fuller, Bishop, Wright, Kinnell, Larkin and including the projectivists, the beats and the present scene.

ENGL 447 Satire (3) An introduction to English and American satire from Chaucer to the present.

ENGL 448 Literature by Women of Color (3) Repeatable to 9 credits if content differs. Literature by women of color in the United States, Britain, and in colonial and post-colonial countries.

ENGL 449 Playwriting (3)

ENGL 450 Elizabethan and Jacobean Drama (3) Beginnings to Marlowe.

ENGL 451 Elizabethan and Jacobean Drama (3) Johnson to Webster.

ENGL 452 English Drama From 1660 to 1800 (3)

ENGL 453 Literary Criticism (3) Prerequisite: two literature courses.

ENGL 454 Modern Drama (3)

ENGL 455 The English Novel (3) Eighteenth century.

ENGL 456 The English Novel (3) Nineteenth century.

ENGL 457 The Modern Novel (3)

ENGL 458 Literature by Women after 1800 (3) Repeatable to 9 credits if content differs. Selected writings by women after 1800.

ENGL 461 Folk Narrative (3) Studies in legend, tale and myth.

ENGL 462 Folksong and Ballad (3)

ENGL 463 American Folklore (3) An examination of American folklore in terms of history and regional folk cultures. Exploration of collections of folklore from various areas to reveal the difference in regional and ethnic groups as witnessed in their oral and literary traditions.

ENGL 464 African-American Folklore and Culture (3) The culture of African Americans in terms of United States history (antebellum to the present) and social changes (rural to urban). Exploration of aspects of African American culture and history via oral and literary traditions and life histories.

ENGL 466 Arthurian Legend (3) Development of the Arthurian legend of heroism and love in English literature from medieval to modern times.

ENGL 469 Honors Seminar: Alternative Traditions (4-5) Prerequisite: permission of Director of English Honors. Repeatable to 9 credits if content differs. Year-long seminar focusing on a selected literary, cultural, or social topic that features texts and/or critical perspectives outside the traditional canon.

ENGL 470 African-American Literature: The Beginning to 1910 (3) Beginnings of African-American literature including origins of literary expression in folk tales, songs, and spirituals; slave narratives; pamphlets, essays and oratory; and the emergence of poetry and fiction. Emphasis is on interaction between literary forms and the salient political issues of the day.

ENGL 471 African-American Literature: 1910-1945 (3) Emergence of modernism in African-American writing including debates over the definition of unique African-American aesthetics, with emphasison conditions surrounding the production of African-American literatures.

ENGL 472 African-American Literature: 1945 to Present (3) Transformation of African-American literatures into modern and postmodern forms. Influenced by World War II and the Civil Rights and Black Power movements, this literature is characterized by conscious attempts to reconnect literary and folk forms, the emergence of women writers, and highly experimental fiction.

ENGL 476 Modern Fantasy and Science Fiction (3) Major works of fantasy and science fiction since the mid-eighteenth century, emphasizing their continuity and their relationships to philosophical speculation, scientific discovery, literary history and cultural change.

ENGL 477 Studies in Mythmaking (3) Prerequisite: two literature courses. Major themes, figures, and configurations of northern European mythology, examining the value of the mythic mode of thought in a scientific era.

ENGL 478 Selected Topics in English and American Literature Before 1800 (1-3) Repeatable if content differs.

ENGL 479 Selected Topics in English and American Literature After 1800 (3) Repeatable if content differs.

ENGL 482 History of the English Language (3)

ENGL 483 American English (3)

ENGL 484 Advanced English Grammar (3) Credit will be granted for only one of the following: ENGL 484 or LING 402.

ENGL 486 Introduction to Old English (3) An introduction to the grammar, syntax, and phonology of Old English. Selected readings from Old English prose and poetry.

ENGL 487 Foundations of Rhetoric (3) Credit will be granted for only one of the followng: ENGL 487 or SPCH 401. Principles and approaches to the theory, criticism, and historical understanding of rhetorical discourse.

ENGL 488 Topics in Advanced Writing (3) Repeatable to 9 credits if content differs. Different genres of technical and professional writing including proposal writing, computer documentation, technical report writing, instruction manuals, etc. Students will analyze models of a genre, produce their own versions, test, edit and revise them.

ENGL 489 Special Topics in English Language (3) Repeatable to 9 credits if content differs. Studies in topics of current interest.

ENGL 493 Advanced Expository Writing (3)

ENGL 494 Editing and Document Design (3) Prerequisite: ENGL 391, ENGL 393 or equivalent. For ENGL majors only. Principles of general editing for clarity, precision and correctness. Applications of the conventions of grammar, spelling, punctuation and usage, and organization for logic and accuracy. Working knowledge of the professional vocabulary of editing applied throughout the course.

ENGL 498 Advanced Fiction Workshop (3) Prerequisite: ENGL 396 or permission of department. Repeatable to 9 credits if content differs. Formerly ENGL 496. Student criticism of student stories or chapters of novels-in-progress. Craft, execution, and technique. Intensive reading of anthologies and individual works in modern and contemporary fiction. Theoretical and critical works that help to define and analyze the context of the tradition.

ENGL 499 Advanced Poetry Workshop (3) Prerequisite: ENGL 397 or permission of department. Repeatable to 9 credits if content differs. Formerly ENGL 497. Student criticism of student work within the context of craft, technique, and execution. Relationship to Anglo-American and International Post-Modernist poetry.

ENMA — Engineering, Materials

ENMA 300 Materials Science and Engineering (3) Prerequisite: ENES 220. Credit will be granted for only one of the following: ENMA 300 or ENME 300. Basic principles, nature and properties of engineering materials. Processes and methods to manufacture and usefully apply engineering materials. Fabrication techniques for metals, polymers, and refractories.

ENMA 301 Materials Engineering Laboratory (1) Two hours of laboratory per week. Pre- or corequisite: ENMA 300. Credit will be granted for only one of the following: ENMA 301 or ENME 301. Fatigue, tensile and impact testing, heat treatment and hardenability, structure and properties of steels, case studies.

ENMA 462 Deformation of Engineering Materials (3) Prerequisite: ENES 230 or permission of both department and instructor. Relationship of structure to the mechanical properties of materials. Elastic and plastic deformation, microscopic yield criteria, state of stress and ductility. Elements of dislocation theory, work hardening, alloy strengthening, creep, and fracture in terms of dislocation theory. course in

ENMA 463 Chemical, Liquid and Powder Processing of Engineering Materials (3) Prerequisite: ENES 230 or permission of both department and instructor. Methods and processes used in the production of primary metals. The detailed basic principles of beneficiation processes, pyrometallurgy, hydrometallurgy, electrometallurgy, vapor phase processing and electroplating. Liquid metal processing including casting, welding, brazing and soldering. Powder processing and sintering. Shapes and structures produced in the above processes.

ENMA 464 Environmental Effects on Engineering Materials (3) Prerequisite: ENES 230 or permission of both department and instructor. Introduction to the phenomena associated with the resistance of materials to damage under severe environmental conditions. Oxidation, corrosion, stress corrosion, corrosion fatigue and radiation damage are examined from the point of view of mechanism and influence on the properties of materials. Methods of corrosion protection and criteria for selection of materials for use in radiation environments.

ENMA 470 Structure and Properties of Engineering Materials (3) A comprehensive survey of the atomic and electronic structure of solids with emphasis on the relationship of structure to the physical and mechanical properties.

ENMA 471 Physical Chemistry of Engineering Materials (3) Equilibrium multicomponent systems and relationship to the phase diagram. Thermodynamics of polycrystalline and polyphase materials. Diffusion in solids, kinetics of reactions in solids.

ENMA 473 Processing of Engineering Materials (3) The effect of processing on the structure of engineering materials. Processes considered include refining, melting and solidification, purification by zone refining, vapor phase processing, mechanical working and heat treatments.

ENMA 489 Selected Topics in Engineering Materials (3) Prerequisite: permission of department. Repeatable to 12 credits if content differs. To introduce basic concepts such as crystal chemistry, defect chemistry and ternary phase equilibria which can also be used to illustrate the various types of advanced ceramics (superconductors; superionic conductors; dielectrics including ferroelectrics; optical materials; high temperature structural materials; etc.) and allow an understanding of their behaviors.

ENMA 496 Polymeric Engineering Materials (3) Prerequisite: ENES 230. Credit will be granted for only one of the following: ENMA 496 or ENCH 496. A comprehensive summary of the fundamentals of particular interest in the science and applications of polymers. Polymer single crystals, transformations in polymers, fabrication of polymers as to shape and internal structure.

ENME — Engineering, Mechanical

ENME 201 Mechanical Engineering Project (1) The disassembly and assembly of a mechanical device. A written report describing the method of operation of the device with sketches and drawings illustrating the components. Grading will be satisfactory/fail.

ENME 205 Numerical Methods in Mechanical Engineering (3) Prerequisites: MATH 246 and ENES 103. For engineering majors only. Introduction to numerical techniques and error analysis. Application to matrices, curve fitting, interpolation, differentiation and integration. Solution of algebraic equations, differential equations and eigenvalue problems as applied in mechanical engineering.

ENME 217 Thermodynamics (3) Prerequisites: PHYS 262; and MATH 141. Properties, characteristics and fundamental equations of gases and vapors. Work transfer and heat transfer, first and second laws of thermodynamics, entropy, irreversibility, availability, and the thermodynamics of mixtures.

ENME 310 Mechanics of Deformable Solids (3) Prerequisites: ENES 220 and ENME 205. For engineering majors only. Introduction to the mechanics of engineering materials in three dimensions. Concepts of stress, strain, generalized Hooke's law, and equilibrium of solids. Modes of failure including plasticity, stability, fatigue, and fracture will be treated. Applications of the finite element method.

ENME 311 Mechanics of Deformable Solids Laboratory (1) Corequisite: ENME 310. A laboratory course in the mechanics of engineering materials. Concepts of stress, strain, generalized Hooke's law, and equilibrium of solids. Modes of failure including plasticity, stability, fatigue, and fracture will be treated.

ENME 315 Intermediate Thermodynamics (3) Prerequisite: ENME 217. Application of the first and second laws of thermodynamics in the analysis of basic heat engines, air compression and vapor cycles. Heat sources in fossil fuels and nuclear fuels. The thermodynamics of fluid flow

ENME 320 Thermodynamics (3) Prerequisites: MATH 141; and PHYS 262. The properties, characteristics and fundamental equations of gases and vapors. Application of the first and second laws of thermodynamics in the analysis of basic heat engines, air compression vapor cycles. Flow and non-flow processes for gases and vapors.

ENME 321 Transfer Processes (3) Prerequisites: ENME 205 and ENME 342. Conduction by steady state and transient heat flow, laminar and turbulent flow, free and forced convection, radiation, evaporation and condensation vapors. Transfer of mass, heat and momentum.

ENME 342 Fluid Mechanics I (3) Prerequisite: ENME 217. Fluid flow concepts and basic equations, effects of viscosity and compressibility. Dimensional analysis and laws of similarity. Flow through pipes and over immersed bodies. Principles of flow measurement.

ENME 343 Fluid Mechanics Laboratory (1) Two hours of laboratory per week. Corequisite: ENME 342. Measurement of fluid properties, determination of pressure drops in pipes and fittings, observation of fluid phenomena. Experiment and demonstration of flow measurement techniques.

ENME 360 Mechanical Vibrations (3) Prerequisites: ENES 220 and ENES 221 and ENME 205. Dynamic characteristics of machinery with emphasis on systems with single and multiple degrees of freedom

ENME 381 Measurements Laboratory (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: ENME 360; and ENEE 300. Required of juniors in mechanical engineering. Measurements and measurement systems, application of selected instruments with emphasis on interpretation of results

ENME 398 Honors Research Project (1-3)

ENME 400 Machine Design (3) Prerequisites: ENME 310; and ENME 360. Corequisite: ENME 401. Working stresses, stress concentration, stress analysis and re-

peated loadings. Design of machine elements. Kinematics of mechanisms.

ENME 401 The Structure and Properties of Engineering Materials (3) Corequisite: ENME 310. The nature and properties of engineering materials as related to their use in all phases of mechanical engineering will be studied. Materials covered include metals, ceramics and glasses, polymer and composites.

ENME 403 Automatic Controls (3) Prerequisites: ENEE 300; and ENME 360. Senior standing. Hydraulic, electrical, mechanical and pneumatic automatic control systems. Open and closed loops. Steady state and transient operation, stability criteria, linear and non-linear systems. Laplace transforms.

ENME 404 Mechanical Engineering Systems Design (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: senior standing in mechanical engineering. Design of components that form a complete working system.Engineering economics, performance-cost studies, optimization. Engineering design practice through case studies. Legal and ethical responsibility of the designer.

ENME 405 Energy Conversion Design (3) Prerequisite: senior standing in mechanical engineering. Application of thermodynamics, fluid mechanics and heat transfer to energy conversion processes. Design of engines, compressors, heat exchangers. Energy storage and fuel handling equipment.

ENME 408 Selected Topics in Engineering Design (3) Prerequisite: senior standing in mechanical engineering or permission of department. Repeatable to 6 credits if content differs. Creativity and innovation in design. Generalized performance analysis, reliability and optimization as applied to the design of components and engineering systems. Use of computers in design of multivariable systems.

ENME 411 Introduction to Industrial Engineering (3) Prerequisites: (ENME 300; and ECON 205) or permission of department. Design, improvement and installation of integrated systems of men, materials and equipment. Areas covered include industrial activities, plant layout and design, value analysis, engineering economics, quality and production control, methods engineering, industrial relations, etc.

ENME 412 Mechanical Design For Manufacturing and Production (3) Prerequisite: senior standing in engineering. The physical properties of materials. Review of key fundamental principles used in product design. Characterization of various classes of engineering materials. The types of manufacturing processes which can be applied to production of the design.

ENME 414 Computer-Aided Design (3) Prerequisites: ENME 205; and MATH 241 or equivalent. Introduction to computer graphics. Plotting and drawing with computer software. Principles of writing interactive software. The applications of computer graphics in computer-aided design. Computer-aided design project.

ENME 415 Engineering Applications of Solar Energy (3) Prerequisites: ENME 315; and ENME 321. Collection, storage, and utilization of solar thermal energy. Conversion to electricity. Component and system modeling equations. Performance analysis. Systems design.

ENME 422 Energy Conversion II (3) Prerequisite: ENME 315. Advanced topics in energy conversion. Direct conversion processes of fuel cells, solar cells, thermionics, thermoelectrics and magnetohydrodynamics.

ENME 423 Environmental Engineering (3) Prerequisites: ENME 321 and senior standing in mechanical engineering. Heating and cooling load computations. Thermodynamics of refrigeration. Low temperature refrigeration. Problems involving extremes of temperature, pressure, acceleration and radiation.

ENME 425 Internal Combustion Engines (3) Prerequisites: ENME 315; and ENME 321. Fundamentals underlying the design and operation of internal combustion engines. Aspects of fuels, lubricants, instrumentation, combustion and performance. The causes and control of air pollution.

ENME 442 Fluid Mechanics II (3) Prerequisites: ENME 342 and senior standing. Hydrodynamics with engineering applications. Stream function and velocity potential, conformal transformations, pressure distributions, circulation, numerical methods and analogies.

ENME 450 Mechanical Engineering Analysis For the Oceanic Environment (3) Characteristics of the marine environment which affect the design, operation and maintenance of mechanical equipment, effects of waves, currents, pressure, temperature, corrosion, and fouling. Study of design parameters for existing and proposed mechanical systems used in marine construction, on shipboard, in search and salvage operations, in

ENME 451 Mechanical Engineering Systems For Underwater Operations (3) Propulsion, control and environmental systems for submerged vehicles. Design of mechanical systems in support of diving and saturated living operations.

ENME 464 Machine Design II (3) Prerequisite: ENME 400. The study of stress and strain as applied to engineering problems; stress and strain from a three dimensional point of view; theories of failure; residual stresses; dynamic loading; fatigue; environmental influence; temperature extremes; corrosive media. Case studies of design practices.

ENME 465 Introductory Fracture Mechanics (3) Senior standing in engineering. An examination of the concepts of fracture in members with pre-existing flaws. Emphasis is primarily on the mechanics aspects with the development of the Griffith theory and the introduction of the stress intensity factor, K, associated with different types of cracks. Fracture phenomena are introduced together with critical values of the fracture toughness of materials. Testing procedures for characterizing materials together with applications of fracture mechanics to design.

ENME 470 Finite Element Analysis (3) Prerequisites: ENME 310; and ENME 321. Basic concepts of the theory of the finite element method. Applications in solid mechanics and heat transfer.

ENME 473 Mechanical Design of Electronic Systems (3) Prerequisites: ENME 310; and ENME 360; and ENME 321. Design considerations in the packaging of electronic systems. Production of circuit boards and design of electronic assemblies. Vibration, shock, fatigue and thermal considerations.

ENME 475 Robotics (3) Prerequisites: ENME 360; and ENEE 300. Basic engineering principles in the design and analysis of robots. Industrial applications of robots.

ENME 480 Engineering Experimentation (3) One hour of lecture and five hours of laboratory per week. Senior standing in mechanical engineering. Theory of experimentation. Applications of the principles of measurement and instrumentation systems to laboratory experimentation. Experiments in fluid mechanics, solid mechanics and energy conversion. Selected experiments or assigned projects to emphasize planned procedure, analysis and communication of results, analogous systems and leadership.

ENME 488 Special Problems (3) Prerequisite: permission of department. Advanced problems in mechanical engineering with special emphasis on mathematical and experimental methods.

ENME 489 Special Topics in Mechanical Engineering (3) Prerequisite: permission of department. Repeatable to 6 credits with permission of advisor. Selected topics of current importance in mechanical engineering.

ENNU — Engineering, Nuclear

ENNU 215 Introduction to Nuclear Technology (3) Prerequisites: MATH 141; and PHYS 161. Engineering problems of the nuclear energy complex, including basic theory, use of computers, nuclear reactor design and isotopic and chemical separations.

ENNU 310 Environmental Aspects of Nuclear Engineering (3) Prerequisites: (MATH 241 or MATH 246; and PHYS 263) or permission of both department and instructor. Evaluation of environmental and safety aspects of nuclear power reactors. Calculations of radioactive decay, activation, and shielding, radiation monitoring. Biological effects of radiation, waste handling, siting, plant design and operations, as related to environment safety and licensing regulations.

ENNU 320 Nuclear Reactor Operation (3) Two hours of lecture and two hours of laboratory per week. Introduction to nuclear reactor operations. Outline of reactor theory. Nature and monitoring techniques of ionizing radiation, radiation safety. Reactor instrument response. Operation of the University of Maryland nuclear reactor.

ENNU 398 Honors Research Project (1-3)

ENNU 430 Radioisotope Power Sources (3) Prerequisite: ENNU 215 or permission of both department and instructor. Principles and theory of radioisotope power sources. Design and use of nuclear batteries and small energy conversion devices.

ENNU 435 Activation Analysis (3) Prerequisite: ENNU 215 or permission of both department and instructor. Principles and techniques of activation analysis involving neutrons, photons and charged particles. Emphasis placed upon application of this analytical technique to solving environmental and engineering problems.

ENNU 440 Nuclear Technology Laboratory (3) One hour of lecture and four hours of laboratory per week. Prerequisites: MATH 240; and PHYS 263. Techniques of detecting and making measurements of nuclear or high energy radiation. Radiation safety experiments. Both a sub-critical reactor and the swimming pool critical reactor are sources of radiation.

ENNU 450 Nuclear Reactor Engineering I (3) Prerequisites: (MATH 246; and PHYS 263) or permission of both department and instructor. Elementary nuclear physics, reactor theory, and reactor energy transfer. Steady-state and time-dependent neutron distributions in space and energy. Conduction and convective heat transfer in nuclear reactor systems.

ENNU 455 Nuclear Reactor Engineering II (3) Prerequisite: ENNU 450. General plant design considerations including radiation hazards and health physics, shielding design, nuclear power economics, radiation effects on reactor materials, and various types of nuclear reactor systems.

ENNU 460 Nuclear Heat Transport (3) Prerequisite: ENNU 450. Heat generation in nuclear reactor cores, conduction and transfer to coolants. Neutron flux distributions, fission and heat release. Steady and unsteady state conduction in fuel elements. Heat transfer to nonmetallic and metallic coolants. Heat transfer with phase change. Thermal design of reactor cores.

ENNU 461 Chemical Separation in the Nuclear Cycle Reactor Fuel (3) Prerequisite: ENNU 450 or permission of both department and instructor. An introduction to chemical and physical separation of the nuclear reactor fuel. Basic separation processes, reactor fuel fabrication, reactor chemistry problems and the handling and treatment of radioactive waste. Calculations of plant design and operation. Related safety issues.

ENNU 465 Nuclear Reactor Systems Analysis (3) Prerequisites: (MATH 246; and PHYS 263; and ENNU 455) or permission of department. Power reactor (BWR, PWR, HTGR) system design and analysis. System specifications and modes of operation. Plant documentation (PSAR, FSAR, etc.). Piping and instrumentation drawings. Theory and application of pump and piping calculations. Steam power plant cycles and calculations. Steam plant equipment (turbines, heaters, condensers, etc.) analysis.

ENNU 468 Research (2-3) Prerequisite: permission of both department and instructor. Repeatable to 6 credits. Investigation of a research project under the direction of one of the staff members. Comprehensive reports are required.

ENNU 470 Introduction to Controlled Fusion (3) Prerequisite: senior standing in engineering or permission of both department and instructor. The principles and the current status of research to achieve controlled thermonuclear power production. Properties of ionized gases relating to confinement and heating. Concepts of practical fusion devices.

ENNU 480 Reactor Core Design (3) Prerequisite: ENNU 450 or permission of both department and instructor. Design of nuclear reactor cores based on a sequence of standard computer codes. Thermal and epithermal cross sections, multigroup diffusion theory in one and two dimensions and fine structure flux calculations using transport theory.

ENNU 490 Nuclear Fuel and Power Management (3) Prerequisites: (ENNU 460; and ENNU 480) or permis-

sion of both department and instructor. Physics and economics of the nuclear fuel cycle utilizing existing design codes. Mining, conversion, enrichment, fabrication, reprocessing processes. Effects of plutonium recycle, in-core shuffling, fuel mechanical design and power peaking on fuel cycle costs.

ENRE — Reliability Engineering

ENRE 462 Basic Reliability Engineering (3) Corequisite: ENRE 470. Senior standing. Organization, management and communication concepts in reliability engineering. Mechanisms and physics of failure, methods for failure-rate determination, methods of design for reliability, maintainability engineering concepts, design for reliability, design for maintainability concepts, life cycle costing, equipment sparing policies, and measuring reliability for improvement.

ENRE 467 System Safety Engineering (3) Prerequisites: MATH 246 and PHYS 263 or permission of department. Role of system safety, the language of system safety, and programs for achieving safety such as the problem solving process, safety criteria, safety descriptors, checklist-timeliness elements, safety training, hazard analysis, and uncertainty in safety measurements. Time-phased indicators, hazard nomenclature, hazard mode and effect analysis, hazard classification, hazard probability, survival rate, distributions applied to human performance.

ENRE 470 Basic Reliability Analysis (3) Prerequisite: MATH 246 and PHYS 263 or permission of department. Corequisite: ENRE 462. Senior standing. Principal methods of reliability analysis, including fault tree and reliability block diagrams, method of failure mode and effect analysis (FMEA); event tree construction and evaluation; reliability data collection and analysis; methods of modeling systems for reliability analysis. Focus on systems of concern to all engineers, such as, problems related to process industries, fossil-fueled power plant availability, and other subjects. Methods of quality control and assurance.

ENTM — Entomology

ENTM 100 Insects (3) A survey of the major groups of insects, their natural history, and their relationships with humans and their environment.

ENTM 111 Beekeeping (2) First semester. A study of the life history, behavior and seasonal activities of the honeybee, its place in pollination of flowers with emphasis on plants of economic importance and bee lore in literature.

ENTM 205 Principles of Entomology (4) Three hours of lecture and two hours of laboratory per week. An introductory overview to the biology and diversity of insects. Basic physiological, ecological and behavioral processes that result in the dominance of insects in the animal kingdom. The management of pest insect populations and the consequences of the strategies used to regulate insect pests. A collection is required.

ENTM 252 Agricultural Insect Pests (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: BIOL 105. Not open to ENTM students. An introduction to the principal insect pests of fruit, vegetable, forage, and ornamental crops, with special reference to Maryland agriculture.

ENTM 303 International Pesticide Problems and Solutions (3) A global assessment of economic, environmental, legal, and social consequences of pests, pesticides, and alternative pest control methods. Case studies of the influence of legal action, government export and import policies, international aid, marketing practices, research and education, and human perceptions on pesticide use. Emphasis on pest and pesticide problems in the Third World and progress in developing pest and pesticide management systems to solve these problems.

ENTM 351 Introduction to Insect Population Management (3) An introduction to the theory and practice of management of insect populations. The course explores the development of all insect pest population suppression methods, as well as the management of insect populations beneficial to humans. The main theme of the course is how humans can manipulate environmental components for the purpose of population regulation of insects, and the beneficial and harmful effects of these manipulations.

ENTM 398 General Colloquium in Entomology (1) Prerequisite: ENTM 205 or permission of department. Presentation of original research by invited guest speakers, faculty, and graduate students. No more than 1 credit hour of ENTM 398 may be applied to the 120 credit hours needed for the Bachelor's degree.

ENTM 399 Special Problems (1-2) Prerequisite: ENTM 205 and permission of department. Credit to be determined by the department. Should be taken during the junior year. Investigations of assigned entomological problems. No more than 4 credit hours of ENTM 399 may be applied to the 120 credit hours needed for the Bachelor's degree.

ENTM 407 Entomology For Science Teachers (4) Four lectures and four three-hour laboratory per week. Summer. This course will include the elements of morphology, taxonomy and biology of insects using examples commonly available to high school teachers. It will include practice in collecting, preserving, rearing and experimenting with insects insofar as time will permit.

ENTM 423 Insect Comparative Morphology (4) Two hours of lecture and six hours of laboratory per week. Prerequisite: ENTM 205. Morphology and anatomy of insects. Comparison of structures using specimens from common orders to study the phylogenetic relationships and to form a basis for understanding insect classification systems.

ENTM 424 Insect Diversity and Classification (4) One hour of lecture and six hours of laboratory per week. Prerequisites: ENTM 205; and ENTM 423. The techniques of collecting insects in the field and their classification into the latest hierarchical scheme. Field trips will visit habitats throughout the state. An insect collection is required.

ENTM 432 Insect Physiology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: ENTM 205; and CHEM 233; and CHEM 243; or permission of department. The physiology of different insect systems. Hormonal basis of insect metamorphosis and reproduction.

ENTM 451 Insect Pests of Agricultural Crops (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: ENTM 205. The recognition, biology and control of insects injurious to fruit and vegetable crops, field crops and stored products.

ENTM 453 Insect Pests of Ornamentals and Turf (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: ENTM 205 or permission of department. The recognition, biology and control of insects and mites injurious to ornamental shrubs, trees, greenhouse crops, and turf. Emphasis on pests of woody ornamental plants.

ENTM 454 Principles of Plant Protection (2) One hour of lecture and two hours of laboratory per week. Prerequisites: ENTM 205 and permission of department. Systematic assessment of the principles of plant protection and pest population management.

ENTM 455 Urban Entomology (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: ENTM 421 or permission of department. A study of the appearance, habits, life cycles and methods of control of pests of humans, pets and structures in the urban environment. Field observations of professional pest control operations and a paper on a selected pest group are required

ENTM 472 Medical and Veterinary Entomology (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: ENTM 205 or permission of department. A study of the morphology, taxonomy, biology and control of the arthropod parasites and disease vectors of man and animals. The ecology and behavior of vectors in relation to disease transmission will be emphasized.

FDSC — Food Science

The following courses may involve the use of animals. Students who are concerned about the use of animals in teaching have the responsibility to contact the instructor, prior to course enrollment, to determine whether animals are to be used in the course, whether class exercises involving animals are optional or required and what alternatives, if any, are available.

FDSC 111 Contemporary Food Industry and Consumerism (3) The role of the food processing industry in attempting to satisfy society's need for food. Food quality nutritional, sensory, and compositional; conventional vs "natural" organic foods; preservation and spoilage-role of chemical additives; synthetic and convenience foods; consumer protection; the food industry and the environment; future food sources.

FDSC 398 Seminar (1) Presentation and discussion of current literature and research in food science.

FDSC 399 Special Problems in Food Science (1-3) Designed for advanced undergraduates. Specific problems in food science will be assigned.

FDSC 412 Principles of Food Processing I (3) The principles of thermal processing including heat resistance of bacteria and bacteral spores, concepts of lethality, heat transfer, and thermal process calculations. Advanced systems of thermal processing and packaging including aseptic applications.

FDSC 413 Principles of Food Processing II (3) A detailed study of food processing with emphasis on line and staff operations, including physical facilities, utilities, pre-and post-processing operations, processing line development and sanitation.

FDSC 421 Food Chemistry (3) Prerequisite: BCHM 261. The application of basic chemical and physical concepts to the composition and properties of foods. Emphasis on the relationship of processing technology, to the keeping quality, nutritional value, and acceptability of foods.

FDSC 422 Food Product Research and Development (3) Four hours of laboratory per week. Prerequisite: FDSC 412; and FDSC 413 or permission of department. Four all day Saturday trips required. A study of the research and development function for improvement of existing products and development of new, economically feasible and marketable food products. Application of chemical-physical characteristics of ingredients to produce optimum quality products, cost reduction, consumer evaluation, equipment and package development.

FDSC 423 Food Chemistry Laboratory (2) Four hours of laboratory per week. Pre- or corequisite: FDSC 421. Analysis of the major and minor constituents of food using chemical, physical and instrumental methods in concordance with current food industry and regulatory practices. Laboratory exercises coincide with lecture subjects in FDSC 421.

FDSC 430 Food Microbiology (2) Prerequisite: MICB 200 or equivalent. A study of microorganisms of major importance to the food industry with emphasis on food-borne outbreaks, public health significance, bioprocessing of foods, disease control, and the microbial spoilage of foods.

FDSC 431 Food Quality Control (4) Three hours of lecture and two hours of laboratory per week. Definition and organization of the quality control function in the food industry; preparation of specifications; statistical methods for acceptance sampling; in-plant and processed product inspection. Instrumental and sensory methods for evaluating sensory quality, identity and wholesomeness and their integration into grades and standards of quality. Statistical Process Control (SPC).

FDSC 434 Food Microbiology Laboratory (2) Four hours of laboratory per week. Pre- or corequisite: FDSC 430. A study of techniques and procedures used in the microbiological examination of foods.

FDSC 442 Horticultural Products Processing (3) Two hours of lecture and two hours of laboratory per week. Commercial methods of canning, freezing, dehydrating, fermenting, and chemical preservation of fruit and vegetable crops.

FDSC 451 Dairy Products Processing (3) Two hours of lecture and two hours of laboratory per week. Method of production of fluid milk, butter, cheese, condensed and evaporated milk and milk products and ice cream

FDSC 461 Technology of Market Eggs and Poultry (3) Two hours of lecture and two hours of laboratory per week. A study of the technological factors concerned with the processing, storage, and marketing of eggs and poultry and the factors affecting their quality.

FDSC 471 Meat and Meat Processing (3) Two hours of lecture and two hours of laboratory per week. Prerequisite BCHM 261 or permission of department. Physical and chemical characteristics of meat and meat products, meat processing, methods of testing and product development

FDSC 482 Seafood Products Processing (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: BCHM 261 or permission of department. The principal preservation methods for commercial seafood products with particular reference to the invertebrates. Chemical and microbiological aspects of processing are emphasized.

FMST — Family Studies

FMST 105 Individuals in Families (3) Formerly FMCD 105. Study of personality development within the family context. Emphasis on identity and self-awareness.

FMST 201 Families in Communities (3) Formerly FMCD 201. Theory and practice regarding the impact of communities on the quality of family life.

FMST 260 Couple Relationships (3) Formerly FMCD 260. Couple relationships and their alternatives in contemporary dating, courtship and marriage.

FMST 302 Research Methods (3) Prerequisite: introductory statistics course. For FMST majors only. Formerly FMCD 302. Introduction to the methods of the social and behavioral sciences employed in family science. The role of theory, the development of hypotheses, measurement, design, and data analysis.

FMST 330 Family Theories and Patterns (3) Junior standing. Formerly FMCD 330. Theory and research on the family, including a cross-cultural analysis of family patterns.

FMST 332 Children in Families (3) Prerequisite: FMST 105 or PSYC 100. Formerly FMCD 332. A family life education approach to the study of children and families. Emphasis on the interaction of children with parents, siblings, extended kin and the community.

FMST 341 Personal and Family Finance (3) Prerequisite: ECON 201 or ECON 205, or permission of department. Credit will be granted for only one of the following: FMCD 441, FMST 341, FMCD 341 or CNEC 410. Formerly FMCD 341. Study of individual and family financial strategies with particular emphasis upon financial planning, savings, insurance, investments, income taxes, housing, and use of credit.

FMST 343 Consumer Issues for Families (3) Prerequisite: ECON 201 or ECON 205, or permission of department. Formerly FMCD 343. Families as consumers of products, goods, and services. Special emphasis on the investigation of current issues.

FMST 347 Internship and Analysis (3) Prerequisites: 6 semester hours of internship related course work and permission of department. For FMST majors only. Credit will be granted for only one of the following: FMST 347, FMCD 347 or FMCD 349. Formerly FMCD 347. A planned, supervised internship complemented by analysis. Opportunities to integrate theory and practice. Field experience requires minimum of 180 hours per semester.

FMST 370 Interpersonal Communication Processes (3) Formerly FMCD 370. Training in interpersonal communication skills. Relevant concepts, principles, and models.

FMST 381 Poverty, Affluence, and Families (3) Prerequisite: FMST 201 or SOCY 100. Formerly FMCD 381. Social, political, cultural and economic factors influencing income and wealth in American families.

FMST 383 Delivery of Human Services to Families (3) Prerequisites: 3 semester hours in SOCY and 3 semester hours in FMST. Formerly FMCD 383. Processes of services delivery with special emphasis upon relationships among managers, operators, and clients. The impact of human service systems on families.

FMST 399 Independent Study (1-6) Prerequisite: permission of department. Repeatable to 12 credits. Formerly FMCD 399.

FMST 430 Gender Issues in Families (3) Prerequisites: SOCY 100 and FMST 260 or permission of department. Formerly FMCD 430. The development of historical, cultural, developmental, and psychosocial aspects of masculinity and femininity within the context of contemporary families and the implications for interpersonal relations.

FMST 431 Family Crises and Intervention (3) Prerequisite: PSYC 100. Formerly FMCD 431. Family crises such as divorce, disability, substance abuse, financial problems, intrafamilial abuse, and death. Theories and techniques for intervention and enhancement of family coping strategies.

FMST 432 Intergenerational Aspects of Family Living (3) Prerequisites: PSYC 100; and SOCY 100; and (FMST 332 or other human development course). Formerly FMCD 432. The historical, cultural, developmental, and psychosocial experiences of contemporary American generations. Interactions across generations within the family and the consequences for individual development. Cross-national comparisons.

FMST 444 Family Services and Human Service Organizations (3) Prerequisite: FMST 383 or equivalent. Formerly FMCD 444. Focuses on planning, administration, implementation, and evaluation within human services organizations with an emphasis on family services.

FMST 445 Family Resource Management (3) Formerly FMCD 445. Interrelationship of resources (time, money, energy, space, materials and human resources) in operation of the household and in meeting demands of multiple roles of family members. Management as intervention strategy.

FMST 447 Persons with Disabilities in Families (3) Prerequisite: PSYC 100 or SOCY 100. Formerly FMCD 447. Family and community issues for persons with disabilities and their families.

FMST 452 Family Policy Analysis (3) Prerequisite: FMST 201 or permission of department. Formerly FMCD 452. Examination of public, private, and non-profit sector policies and their impact on the quality of family life. Emphasis on policy formation, implementation, and evaluation.

FMST 460 Violence in Families (3) Prerequisite: PSYC 100 or SOCY 105. Formerly FMCD 460. Theories of child, spousal, parental, grandparental abuse in the family setting, review of current evidence, and an introduction to methods for prevention and remediation.

FMST 480 Employment-Based Family Support Programs (3) Formerly FMCD 480. The purpose, nature, organization and administration of worksite, or employer-based, family support resources, including child and elder care referral and subsidies, parenting education, health and wellness programs, parental and sick child leaves, and flexible work scheduling.

FMST 485 Introduction to Family Therapy (3) Prerequisites: FMST 330 or FMST 370; or one psychology course at 300 or above level. Formerly FMCD 485. The fundamental theoretical concept and clinical procedures of marital and family therapy including pre-marital and divorce therapy issues.

FMST 487 Legal Aspects of Family Problems (3) Formerly FMCD 487. Laws and legal procedures, with emphasis on adoption, marriage, divorce, annulment, and property rights, and how they affect family life.

FMST 497 The Child and the Law (3) Formerly FMCD 497. Legislation and case law regarding children's legal rights with emphasis on the rights of children in the juvenile justice system, and rights to medical, educational, and other social services.

FMST 498 Special Topics (1-3) Prerequisite: pd. Repeatable to 6 credits if content differs. Formerly FMCD 498. Special course topics in family.

FOLA — Foreign Language

FOLA 108 Elementary Foreign Languages I (3) Repeatable if content differs. The first semester of conversational study of a language not otherwise offered. The arts and humanities language requirement may be fulfilled by successful completion of FOLA 108, FOLA 109, FOLA 118 and FOLA 119 in a single language.

FOLA 109 Elementary Foreign Languages II (3) Prerequisite: FOLA 108 in the subject language or permission of department. Repeatable if content differs. The second semester of conversational study of a language not otherwise offered. The arts and humanities language requirement may be fulfilled by successful completion of FOLA 108, FOLA 109, FOLA 118 and FOLA 119 in a single language.

FOLA 118 Intermediate Foreign Languages I (3) Prerequisite: FOLA 109 in the subject language or permission of department. Repeatable if content differs. The third semester of conversational study of a language not otherwise offered. The arts and humanities language requirement may be fulfilled by successful completion of FOLA 108, FOLA 109, FOLA 118 and FOLA 119 in a single language.

FOLA 128 Introductory Middle Eastern Languages I (3) Prerequisite: permission of department. Repeatable to 9 credits if content differs. An introduction to the three principal languages of the Islamic Middle East: Arabic, Persian, and Turkish. Only standard written form of the three languages is taught. May not be used to satisfy arts and humanities language requirement.

FOLA 129 Introductory Middle Eastern Languages II (3) Prerequisite: FOLA 128 and permission of department. Repeatable to 9 credits if content differs. Continuation of FOLA 128. May not be used to satisfy arts and humanities language requirement.

FOLA 138 Directed Study of a Foreign Language I (3) Open only by permission of department to students of high motivation and proven language learning aptitude. Directed study of a modern foreign language with use of a self-instructional approach.

FOLA 139 Directed Study of a Foreign Language II (3) Prerequisite: FOLA 138 in the same language or permission of department. A continuation of FOLA 138.

FOLA 148 Directed Study of a Foreign Language III (3) Prerequisite: FOLA 139 in the same language or permission of department. A continuation of FOLA 139.

FOLA 149 Directed Study of a Foreign Language IV (3) Prerequisite: FOLA 148 in the same language or permission of department. A continuation of FOLA 148.

FOLA 158 Directed Study of a Foreign Language (Intensive) I (6) Open only by permission of department to students of very high motivation and proven language learning aptitude. Intensive directed study of a modern foreign language with use of a self-instructional approach. Equivalent to FOLA 138 plus FOLA 139.

FOLA 159 Directed Study of a Foreign Language (Intensive) II (6) Prerequisite: FOLA 158 in the same language or permission of department. A continuation of FOLA 158. Equivalent to FOLA 148 plus FOLA 149.

FOLA 228 Intermediate Middle Eastern Languages I (3) Prerequisite: FOLA 129 and permission of department. Repeatable to 9 credits if content differs. Continuation of FOLA 129. May not be used to satisfy arts and humanities language requirement.

FOLA 329 Advanced Middle Eastern Languages II (3) Prerequisite: FOLA 328 or permission of department. Repeatable to 9 credits if content differs. Continuation of FOLA 328. May not be used to satisfy arts and humanities language requirement.

FOLA 389 Foreign Civilization (3) Repeatable to 6 credits if content differs. A survey of the cultural history, arts and letters, folklore and life-style of the speakers of a language not otherwise offered. All readings and instruction in English.

FOLA 408 Foreign Language I (3) Intensive study of a foreign language or related topic not available under one of the current foreign language departments or programs. May not be used to fulfill the arts and humanities language requirement.

FOLA 409 Foreign Language II (3) Prerequisite: FOLA 408 in the same language or topic. A continuation of FOLA 408. May not be used to fulfill arts and humanities language requirement.

FOLA 459 Foreign Literature in Translation (3) Repeatable to 6 credits if content differs. Reading and discussion of selected authors, periods or genres of a foreign literature not otherwise offered. All readings and instruction in English.

FOOD — Food

FOOD 105 Professional Orientation (1) A series of lectures introducing the student to the broad field of careers in food, nutrition, dietetics, and foodservice administration. Includes trends, role of related sciences, educational and personal requirements, ethics, and opportunities in each professional area.

FOOD 110 Food for People (3) A study of food in contemporary living. Economic, social, cultural and aesthetic implications of food. Selection and use of food in relation to eating habits and well-being of the individual.

FOOD 210 Scientific Principles of Food Preparation and Management (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: NUTR 100 or NUTR 200 or FOOD 110. Study of basic scientific principles as applied to food preparation processes and management of family needs through organization of available resources.

FOOD 240 Science of Food I (3) Two hours of lecture and three hours of laboratory per week. Pre- or corequisite: CHEM 233 or CHEM 104. Composition and structure of food with study of the fundamental principles involved in food handling and treatment. Especially designed for majors in food, nutrition and foodservice administration.

FOOD 250 Science of Food II (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: FOOD 240. A continuation of FOOD 240.

FOOD 440 Advanced Food Science I (3) Prerequisites: FOOD 250; and BCHM 261 or BCHM 461. Chemical and physical properties of food as related to consumer use in the home and institutions.

FOOD 445 Advanced Food Science Laboratory (1) Three hours of laboratory per week. Pre- or corequisite: FOOD 440. Chemical determination of selected components in animal and plant foods.

FOOD 450 Advanced Food Science II (3) One hour of lecture and six hours of laboratory per week. Prerequisite: FOOD 440 or equivalent. Individual and group laboratory experimentation as an introduction to methods of food research.

FOOD 480 Food Additives (3) Prerequisite: FOOD 440 or equivalent or permission of department. Effects of intentional and incidental additives on food quality, nutritive value and safety. Current regulatory procedures.

FOOD 498 Selected Topics (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected current aspects of food.

FREN — French

FREN 101 Elementary French (4) Four classroom meetings per week plus one laboratory hour. Not open to students with 2 or more years of high-school level French. Introduction to basic structures and pronunciation with emphasis on the four skills: listening, speaking, reading and writing.

FREN 102 Elementary French (4) Four classroom meetings plus one laboratory hour per week. Prerequisite: FREN 101 at UMCP or permission of department. Further work on basic structures and pronunciation with emphasis on the four skills: listening, speaking, reading and writing.

FREN 103 Review of Elementary French (4) Limited to students who have had at least two years of high-school French or equivalent or who do not qualify for FREN 203. Credit will be granted for only one of the following: FREN 101/ FREN 102 or FREN 103.

FREN 121 Accelerated French I (3) Prerequisite: good background in at least one other foreign language (successful completion of level 4 in high school or equivalent at the university level; or linguistic competence acquired by residence abroad; or demonstration of equivalent proficiency). An intensive beginning course in French language skills to enable the student to move more quickly to advanced courses. With FREN 122, may be used to satisfy language requirements.

FREN 200 French For Reading (3) Course not open to students who have completed two years of high school French or two semesters college French within the last five years nor to students for whom French is the native language. Intensive course designed to bring students to a basic reading and translating competence of ordinary literary and scientific French, with the aid of a dictionary, in one semester. Study of essential grammar, but no spoken or written French involved. No prerequisites. May not be used to satisfy the language requirement of the College of Arts and Humanities.

FREN 202 Honors Intermediate French (4) Four hours of lecture per week. Prerequisite: permission of department. Credit will be granted for only one of the following FREN 202 or FREN 203. Introductory readings in French literature and culture for students wishing an intensive, accelerated version of FREN 203. Designed primarily for highly motivated students. Fulfills the Arts and Humanities language requirement.

FREN 203 Intermediate French (4) Completion of the study of basic grammatical structures, with readings, conversation, and composition. Fulfills the Arts and Humanities language requirement.

FREN 204 Review Grammar and Composition (3) Prerequisite: FREN 203 or permission of department. An intensive review of major aspects of contemporary grammatical usage; training in comprehension and guided composition.

FREN 211 Intermediate Conversation (3) Not open to native speakers Prerequisite: FREN 203 or permission of department. Practice in spoken French with emphasis on contemporary French topics.

FREN 240 Masterworks of French Literature in Translation (3) Major works of French literature from pre-revolutionary France to the present. Emphasis on the individual in a social context. In English.

FREN 241 Women Writers of French Expression in Translation (3) Works and ideas of 20th century women writers of French in Canada, Africa, the Caribbean and France. Taught in English.

FREN 242 Black Writers of French Expression in Translation (3) An analysis of the works and ideas of 20th century black writers of French in Africa, the Caribbean and France. Taught in English.

FREN 250 Readings in French (3) Prerequisite: FREN 203 or equivalent. Selected readings from various genres in French literature. Discussion and brief written reports in French.

FREN 301 Composition and Style (3) Prerequisite: FREN 204 or permission of department. Grammatical analysis, translation, free and guided composition.

FREN 302 Introduction to Translation (3) Prerequisite: FREN 301 or permission of department. Problems and strategies of translation into both English and French. Journalistic and literary styles; practicum format.

FREN 303 Practicum in Translation (3) Prerequisite: FREN 302 or permission of department. Continuation of FREN 302 with translation work in political, diplomatic, and commercial styles in French and English. Practicum format.

FREN 306 Commercial French I (3) Prerequisite: FREN 301 or permission of department. Introduction to commercial French including correspondence and business terminology. Emphasis on cross-cultural concepts needed for successful interaction within business settings. In French.

FREN 311 Advanced Comprehension and Expression in French (3) Prerequisite: FREN 204 or permission of department. Development of aural comprehension and oral expression through use of radio and television broadcasts.

FREN 312 Introduction to French Civilization: The French Press (3) Prerequisite: FREN 211 or permission of department. French press focusing on the printed media of the French-speaking world, including a variety of types and styles.

FREN 340 Modern French Literature in Translation (3) A survey of major authors and movements of French literature from pre-revolutionary France to the present. All work in English.

FREN 351 French Literature From the Revolution to the Present (3) Prerequisite: FREN 204 or FREN 250 or permission of department. A survey of the chief authors and major movements of French literature from Pre-Romanticism to the present.

FREN 352 French Literature From the Middle Ages to the Revolution (3) Prerequisite: FREN 204 or FREN 250 or permission of department. A survey of the chief authors and major movements of French literature from the Middle Ages to the end of the 18th century.

FREN 370 Aspects of French Civilization (3) Credit may not be counted toward a French major. Political, social, intellectual, and literary forces shaping contemporary France, from the French Revolution to the present. Taught in English.

FREN 398 Practicum in Spoken French (1) Prerequisite: FREN 312 or permission of department. Credit may not be counted toward a French major. Repeatable to 3 credits. Practice in French conversation at the advanced level. Satisfactory/Fail only

FREN 399 Directed Study in French (1-3) Prerequisite: permission of department. Repeatable to 3 credits. Intended for advanced undergraduates who wish to work on an individual basis with a professor of their choice. Open as elective to all students, but may not be counted toward French major. May be taken for one, two or three credits, according to nature and scope of work envisaged. Grading method: Satisfactory/Fail only

FREN 400 Applied Linguistics (3) The nature of applied linguistics and its contribution to the effective teaching of foreign languages. Comparative study of English and French, with emphasis upon points of divergence. Analysis, evaluation and construction of related drills.

FREN 401 Stylistics (3) Prerequisite: FREN 301 or permission of department. Comparative stylistic analysis; translation.

FREN 402 Advanced Grammar and Phonetics (3) Prerequisite: FREN 301 or permission of department. Theory and practice of grammatical structures and rules of phonetics.

FREN 404 Advanced Conversation in French (3) Prerequisite: FREN 311 or FREN 312 or permission of department. Development of fluency in French, stress on correct sentence structure and idiomatic expression.

FREN 405 Explication De Texte (3) Oral and written analysis of short literary works, or of excerpts from longer works chosen for their historical, structural, or stylistic interest, with the purpose of training the major to understand literature in depth and to make mature esthetic evaluations of it.

FREN 406 Commercial French II (3) Prerequisite: FREN 306 or permission of department. Advanced study of commercial French language--terminology and style--leading to preparation for the Paris Chamber of Commerce Examination.

FREN 407 History of the French Language (3) Evolution of the French language from Latin to modern French.

FREN 419 Studies in Medieval French Literature (3) Repeatable to 6 credits if content differs. Selected topics in medieval French literature.

FREN 429 Studies in French Literature of the Renaissance (3) Repeatable to 6 credits if content differs. Selected topics in French literature of the Renaissance.

FREN 439 Studies in 17th Century French Literature (3) Repeatable to 6 credits if content differs. Selected topics in seventeenth-century French literature.

FREN 449 Studies in 18th Century French Literature (3) Repeatable to 6 credits if content differs. Selected topics in eighteenth-century French literature.

FREN 459 Studies in 19th Century French Literature (3) Repeatable to 6 credits if content differs. Selected topics in nineteenth-century French literature.

FREN 469 Studies in 20th Century French Literature (3) Repeatable to 6 credits if content differs. Selected topics in twentieth-century French literature.

FREN 471 French Civilization I (3) French life, customs, culture, traditions (800-1750).

FREN 472 French Civilization II (3) French life, customs, culture, traditions (1750 to the early twentieth century).

FREN 473 Cross-Cultural Approaches to the Study of Contemporary French Society (3) Patterns of communication, mythology, and ideology in modern France, from the Third Republic to the present, through historical and cross-cultural approaches, with reference to the Francophone world.

FREN 474 Contemporary France: A Sociocritical Approach (3) Recommended: FREN 473. A sociocritical approach to understanding modern French society through the study of print and non-print media documents (autobiography, film, and paraliterature), with reference to the Francophone world.

FREN 475 French Cineme: A Cultural Approach (3) A study of French culture, civilization, and literature through the medium of film. In English.

FREN 478 Themes and Movements of French Literature in Translation (3) Studies treatments of thematic problems or of literary or historical movements in French literature. Topic to be determined each semester. Given in English.

FREN 479 Masterworks of French Literature in Translation (3) Treats the works of one or more major French writers. Topic to be determined each semester. Given in English.

FREN 489 Pro-Seminar in Themes or Movements of French Literature (3) Repeatable to 6 credits if content differs.

FREN 494 Honors Independent Study (3) Open only to students admitted to the departmental honors program. Honors independent study involves guided readings based on an honors reading list and tested by a 6 hour written examination. HONR 494 and HONR 495 are required to fulfill the departmental honors requirement.

FREN 495 Honors Thesis Research (3) Open only to students admitted to the departmental honors program. Honors thesis research involves the writing of a paper under the direction of a professor in this department and an oral examination. HONR 494 and HONR 495 are required to fulfill the departmental honors requirement.

FREN 498 Special Topics in French Literature (3) Repeatable to 6 credits if content differs.

FREN 499 Special Topics in French Studies (3) Repeatable to 6 credits if content differs. An aspect of French studies, the specific topic to be announced each time the course is offered.

FSAD — Foodservice Administration

FSAD 200 Introduction to Foodservice (2) Introduction to the historical development, future trends, and careers in the foodservice industry, e.g. franchises, multi-unit corporations, hospitals, educational institutions, and vending.

FSAD 300 Foodservice Organization and Management (3) Prerequisite: permission of department. Introduction to basic principles of foodservice management. Interrelationships of management processes and technical operations applied to foodservice.

FSAD 350 Foodservice Operations I (5) Three hours of lecture and five hours of laboratory per week. Prerequisite: FOOD 250. Pre- or corequisites: FSAD 300; and MICB 200. Introduction to management. Responsibilities in quantity food production and purchasing in a foodservice operation. Laboratory experience in planning, preparation, and service of meals which meet the nutritional needs of the consumer.

FSAD 355 Foodservice Operations II (4) Two hours of lecture and five hours of laboratory per week. Prerequisite: FSAD 350. Foodservice systems management competencies and laboratory experience in recipe development, market analysis and merchandising, testing quantity food products, and solving foodservice problems.

FSAD 390 Introduction to Foodservice Budgeting (1) Prerequisite: FSAD 300. Pre- or corequisite: FSAD 350. Introduction to basic principles of budgeting for dietetics.

FSAD 415 Foodservice Cost Accounting (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: FSAD 350. Study of foodservice financial management and cost accounting, and utilization of computers in controlling foodservice systems.

FSAD 440 Foodservice Personnel Administration (2) Prerequisite: FSAD 350. Personnel selection, training, scheduling, job evaluation; labor regulations and costs.

FSAD 450 Foodservice Equipment Planning (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: FSAD 350. Layout and design of a foodservice facility: prospectus, menu, equipment selection and maintenance. Factors affecting foodservice design and operations.

FSAD 455 Manpower Planning for Foodservice (3) Pre- or corequisite: FSAD 350. Foodservice management responsibilities in human resource planning and development based on current theories, legislation and the foodservice labor market.

FSAD 480 Practicum in Foodservice Administration (3) Prerequisites: FSAD 350 and permission of department. In service training and practical experience totaling at least 120 hours in an approved foodservice operation under direct supervision of practicum advisor.

FSAD 490 Special Problems in Foodservice (2-3) Prerequisites: senior standing, five hours in FSAD courses and permission of department. Individual selected problems in the area of foodservice.

FSAD 498 Selected Topics (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected current aspects of foodservice administration.

GEOG — Geography

GEOG 100 Introduction to Geography (3) An introduction to the broad field of geography as it is applicable to the general education student. The course presents the basic rationale of variations in human occupancy of the earth and stresses geographic concepts relevant to understanding world, regional and local issues.

GEOG 110 The World Today: A Regional Geography (3) An examination of the functioning world today and the regions and major countries that are part of the whole. Organized around the framework of modern and traditional lifestyles with the aim of providing understanding of the world and its regions for the general education student.

GEOG 120 Nations in Conflict: A Spatial View (3) The geographic characteristics of conflict areas around the world. Issues common to international disputes such as: uneven access to resources, population pressures, religious differences and boundary disputes.

GEOG 123 Causes and Implications of Global Change (3) Also offered as BOTN 123, GEOL 123, and METO 123. Credit will be granted for only one of the following: BOTN 123, GEOG 123, GEOL 123, or METO 123. A unique experience in integrating physical, chemical, geological, and biological sciences with geographical, economic, sociological, and political knowledge skills toward a better understanding of global change. Review of environmental science relating to weather and climate change, acid precipitation, ozone holes, global warming, and impacts on biology, agriculture, and human behavior. Study of the natural, long-term variability of the global environment, and what influence mankind may have in perturbing it from its natural evolution. Concepts of how physical, biological, and human behavioral systems interact, and the repercussions which may follow human endeavors. The manner in which to approach decision and policy making related to global change.

GEOG 130 Developing Countries (3) An introduction to the geographic characteristics of the development problems and prospects of developing countries. Spatial distribution of poverty, employment, migration and urban growth, agricultural productivity, rural development, policies and international trade. Portraits of selected developing countries.

GEOG 140 Coastal Environments (3) Introduction to coastal environments with emphasis on U.S. East Coast. Physical and ecological systems, beach processes, waves, currents, human impacts, coastal zone management and shoreline engineering. Case studies of coastal areas, including Ocean City, Maryland.

GEOG 150 World Cities (3) An introduction to the forces that affect the growth of cities in different parts of the world. Regional variations in city design and examples of great world cities. The impact of changing technologies, economic and social change on the evolution of the city. Current and emerging trends.

GEOG 170 Maps and Map Use (3) The use and interpretation of maps encountered in both "everyday" reading, and in scientific literature. Development of skills in map reading, environmental analysis, interpretation and orienteering.

GEOG 171 Maps and Map Use Laboratory (1) Two hours of laboratory per week. Pre- or corequisite: GEOG 170. A laboratory course to accompany GEOG 170. Experience with maps as research tools; coordinate systems, projections; measurement of angles, directions, distance, area, topographic maps, map interpretation; symbolization; statistical mapping; spatial arrangement, and remote sensing.

GEOG 201 Geography of Environmental Systems (3) A systematic introduction to the processes and associated forms of the atmosphere and earth's surfaces emphasizing the interaction between climatology, hydrology and geomorphology.

GEOG 202 The World in Cultural Perspective (3) The imprint of cultural traits, such as religion, language and livelihood systems, on the earth's landscape. The transformation of the earth's surface as a result of cultural diversity, settlement patterns, political organization, cultural evolution, and population growth.

GEOG 203 Economic Geography (3) The spatial characteristics of world and regional economic activities. Population patterns; technology and economic development; principles of spatial interactions in trade; transportation networks; the city as an employment generator; the location of industries and services; the production and trade of agricultural and energy products.

GEOG 211 Geography of Environmental Systems Laboratory (1) Two hours of laboratory per week. Pre- or corequisite: GEOG 201 or GEOL 100 or GEOL 120. A laboratory course to accompany GEOG 201. Analysis of the components of the earth's energy balance using basic instrumentation; weather map interpretation; soil analysis; the application of map and air photo interpretation techniques to landform analysis.

GEOG 298 Special Topics in Geography (3) Repeatable to 6 credits if content differs. An introductory course dealing with special topics in geography.

GEOG 305 Quantitative Methods in Geography (3) A practical introduction to data sources and measurement, descriptive statistics, data collection, sampling and questionnaire design, field techniques, map use, computer use and data presentation.

GEOG 310 Research and Writing in Geography (3) Prerequisite: GEOG 305. Development of research methods in geography including the formulation of problem, the establishment of hypotheses, development of structures for testing hypotheses, and practice with forms of geographic presentation. Maps, quantitative and field methods are used as appropriate.

GEOG 320 The United States and Canada (3) The two countries as functioning geographic systems with important differences and key linkages. An examination of the cultural, environmental, and economic components and their spatial variation. Attention to the role of regions in national economies.

GEOG 321 Maryland and Adjacent Areas (3) The physical environment, natural resources, and population in relation to agriculture, industry, transport, and trade in the State of Maryland and adjacent areas.

GEOG 322 Central America, the Caribbean and Mexico (3) The physical framework, broad economic and historical trends, cultural patterns, and regional diversification of Mexico, Central America, the West Indies.

GEOG 323 South America (3) A survey of natural environment and resources, economic development and cultural diversity of the South American countries, with emphasis on problems and prospects of the countries.

GEOG 324 Europe (3) The geographical diversity of modern Europe from landscape and regional perspectives. The diverse features of Europe's physical environment and resource base, and their integration into the demographic, economic, social and political patterns of the continent's major geographic regions.

GEOG 325 Soviet Union (3) The Soviet Union as a functioning geographic system: its ethnic and cultural diversity, historical development, resource base, and economic regions. The contributions of the regional parts to the national whole.

GEOG 326 Africa (3) A geography of sub-Saharan Africa: physical features, climates, political and cultural regions. Population and resource distribution, current levels of economic and social well-being, urbanization

development policies, projects and constraints, and migration trends.

GEOG 327 South Asia (3) Methods of regional analysis and area studies applied to the Indian Subcontinent, including India, Pakistan, Bangladesh, Sri Lanka and adjacent nations. Locational significance of the natural environment, historical and cross-cultural processes, languages and religion, the economy and government, population, archaeology, urbanization and development.

GEOG 328 Topics in Regional Geography (3) Repeatable to 6 credits if content differs. Selected topics in regional geography.

GEOG 331 Southeast Asia (3) Spatial organization and development in and among Malaysia, Singapore, Indonesia, the Philippines, Thailand, Vietnam, Laos, Kampuchea and adjacent countries. Locational significance of the natural environment, historical and cross-cultural processes, economic and modernization trends, social conflicts and future development prospects.

GEOG 340 Geomorphology (3) Survey of landform types and role of processes in their generation. Frequency of occurrence and implications for land utilization. Emphasis on coastal, fluvial, and glacial landforms in different environmental settings. Landform regions of Maryland.

GEOG 345 Climatology (3) The geographic aspects of climate with emphasis on energy-moisture budgets, steady-state and non steady-state climatology, and climatic variations at both macro-and micro-scales.

GEOG 350 The American City: Past and Present (3) Development of the American city from the early nineteenth century to the present. The internal structure of contemporary metropolitan areas, the spatial arrangement of residential, commercial, and other activities. Washington, D.C. and Baltimore examples.

GEOG 370 Principles of Cartography (3) Lecture and laboratory learning each week. Techniques and problems of compilation, symbolization, design and construction of special purpose maps. Emphasis on the methods of improving map design based on the organization of map components and the proper selection of symbols.

GEOG 372 Remote Sensing (3) Principles of remote sensing in relation to photographic, thermal infra-red and radar imaging. Methods of obtaining quantitative information from remotely-sensed images. Interpretation of remotely-sensed images emphasizing the study of spatial and environmental relationships.

GEOG 373 Computer Mapping (3) Prerequisite: GEOG 370 or CMSC 110 or permission of department. Introduction to the use of computers to produce maps, with emphasis on software packages and algorithms used to produce thematic maps. Mathematical and perceptual problems of maps produced on line printers, line plotters, and display screens.

GEOG 380 Local Field Course (3) Training in geographic field methods and techniques. Field observation of land use in selected rural and urban areas in Maryland and adjacent areas.

GEOG 384 Internship in Geography (3) Prerequisite: GEOG 305; and GEOG 310; and permission of department. Corequisite: GEOG 385. Supervised field training to provide career experience. Introduction to professional level activities, demands, opportunities. Placement at a public agency, non-profit organization, or private firm. Participation requires application to the internship advisor in preceding semester.

GEOG 385 Internship Research Paper (3) Prerequisite: GEOG 305; and GEOG 310; and permission of department. Corequisite: GEOG 384. Seminar conducted on campus. Research paper related to the student's internship.

GEOG 398 Honors Research (3) Student development of a potential research topic under the guidance of a faculty advisor, culminating in a written and oral presentation of a research proposal.

GEOG 399 Honors Thesis (3) Prerequisite: GEOG 398. Second course in departmental honors sequence. Student research under the auspices of a faculty advisor, culminating in a research paper to be defended orally before the geography honors committee.

GEOG 410 Colonial North America (3) The changing geography of the U.S. and Canada from pre-Columbian times to the end of the 18th century. Emphasis on areal variations, and changes in the settlements and economies of Indian and colonial populations. Areal specialization, and the changing patterns of agriculture, industry, trade and transportation. Population growth, composition and interior expansion. Regionalization.

GEOG 411 19th Century North America (3) An analysis of the changing geography of the U. S. and Canada from 1800 to the 1920's. The settlement, expansion and socio-economic development of the U. S., and comparisons with the Canadian experience. Immigration, economic activities, industrialization, transportation and urbanization.

GEOG 414 Historical Geography of the Hispanic World (3) The social, economic, political and cultural geography of the countries of the Iberian peninsula and Latin America in the past with concentration on specific time periods of special significance in the development of these countries.

GEOG 416 Overseas European Colonization and the Third World (3) The impact of European overseas expansion on Africa, Asia and Australia during the 19th and early 20th centuries. Settlement patterns and territorial organization. Cultural and demographic change. Economic organization of space.

GEOG 420 Cultural Geography (3) Prerequisite: GEOG 201, or GEOG 202, or ANTH 101, or ANTH 102, or permission of department. Impact of the human race through ideas and technology on the evolution of geographic landscapes. Major themes in the relationships between cultures and environments.

GEOG 421 Cultural Ecology (3) Basic issues concerning the natural history of the human race from the perspective of the geographer. Basic components of selected behavioral and natural systems, their evolution and adaptation, and survival strategies.

GEOG 422 Population Geography (3) The spatial characteristics of population distribution and growth, migration, fertility and mortality from a global perspective. Basic population-environmental relationships; carrying capacity, density, relationships to national development.

GEOG 423 Political Geography (3) Geographical factors in the national power and international relations; an analysis of the role of "geopolitics" and "geostrategy," with special reference to the current world scene.

GEOG 430 Location Theory and Spatial Analysis (3) Theories and procedures for determining the optimal location of industrial, commercial and public facilities. Techniques to evaluate location decisions. The provision of services within regions and metropolitan areas. Emerging trends.

GEOG 433 Transportation Networks (3) Description and modeling of spatial components of transportation systems. The theory and practice of analyzing transportation networks, including nodes, links, routes, flows and regions. Examples drawn from different transportation nodes.

GEOG 434 Agricultural and Rural Development (3) Spatial organization of agricultural resources; major types of agricultural activities in the world and their relationship to geographic conditions. Problems of conservation.

GEOG 436 Issues in Urban Transportation (3) Spatial patterns of personal travel, movement of goods, and public transit services in cities. Transportation and land use. Public policy issues; transportation access, energy use, and neighborhood disruption. Methods of data collection and analysis, travel demand surveys.

GEOG 440 Process Geomorphology (3) Prerequisite: GEOG 340 or GEOL 340 or permission of department. A quantitative investigation of the fundamental geomorphic processes shaping modern landscapes, with emphasis on coastal, fluvial, and glacial processes. Field, instrumentation and laboratory analyses.

GEOG 441 Geomorphological Environments (3) Prerequisite: GEOG 201 or GEOL 100 or permission of department. Analysis of regional geomorphic environments; arctic, alpine, coastal, desert. Fluvial and glacial landscape impacts. Discussion of historical environments.

GEOG 442 Urban Climates (3) Prerequisite: GEOG 345 or GEOG 347 or METO 301 or permission of department. Effects of cities on their climatic environment. Radiant energy budgets, urban heat islands, precipitation patterns and effects of the urban climate on human activities.

GEOG 446 Applied Climatology (3) Prerequisite: GEOG 345 or permission of department. Components of earth's radiation balance and energy budgets: radiation, soil heat flux and the evaporation process. Measurement and estimation techniques. Practical applications of microclimatological theory and techniques.

GEOG 448 Field and Laboratory Techniques in Environmental Science (1-3) Prerequisite: GEOG 201 or GEOL 100 or AGRO 105 or ENCE 221 or permission of department. Lecture and laboratory learning each week. A variable credit course that introduces field and laboratory analyses in environmental science. Individual learning contracts are developed with instructor.

GEOG 450 The Contemporary City (3) The contemporary urban system: towns, cities and metropolitan areas and their role as concentrations of social and economic activity. Patterns of land-use: residential, employment, commercial activity, manufacturing, and transportation. Explanatory and descriptive models. International comparisons.

GEOG 454 Washington, D.C.: Past and Present (3) Development of the Washington, D.C. area from its origin as the Federal Capital to its role as a major metropolitan area. The geographic setting, the L'Enfant Plan and its modification, the federal government role, residential and commercial structure. The growth of Washington's suburbs.

GEOG 456 The Social Geography of Metropolitan Areas (3) A socio-spatial approach to human interaction with the urban environment; ways people perceive, define, behave in, and structure their cities and metropolitan areas. Spatial patterns of social activities as formed by the distribution and interaction of people and social institutions.

GEOG 457 Historical Geography of North American Cities (3) The urbanization of the United States and Canada prior to 1920. The evolution of the urban system across each country and the spatial distribution of activities within cities. The process of industrialization and the concurrent structuring of residential patterns among ethnic groups.

GEOG 462 Water Resources Policy and Planning (3) Critical concepts in U.S. water resources management with emphasis on Federal fresh and surface water policy. Examination of water resources planning models, focusing on demand projections, prediction of water supply, and economic and environmental project evaluation.

GEOG 463 Geographic Aspects of Pollution (3) Impact of human activities on the environment and resulting pollution problems. Characteristics and spatial aspects of air, water, and land resource problems. Federal legislation and planning techniques to reduce pollution.

GEOG 464 Energy Resources and Planning (3) Regional distribution of energy resources and consumption in the U.S. Past and present patterns of energy use. Assessment of the potential of conservation, and nuclear, fossil and renewable energy resources with an emphasis on spatial impact of energy policy decisions.

GEOG 467 Energy Resources and the Environment (3) Effects of energy resource utilization on the physical environment including land use, air and water quality, and solid waste generation. Recent laws and policies designed to reduce environmental impacts. Physical consequences of alternative energy technologies.

GEOG 470 Development of Cartographic Technology (3) Impacts of technological improvements in land surveying and maps production of graphic and spatial images. The formation, expansion and diffusion of geographic information. Study of cartographic imagery as a changing form of communication.

GEOG 471 Cartographic Production (3) Prerequisite: GEOG 370. Lecture and laboratory learning each week. Map making and modern methods of production and reproduction. Organization of artwork for multicolor or series map production including production planning and quality control.

GEOG 475 Principles of Map Design (3) Prerequisite: GEOG 370. The principles of designing maps for publication in print media, including books and atlases. The selection of symbols, colors, lettering, map projections, and map content. Constraints and problems in the classification and representation of map data.

GEOG 478 Problems in Cartography (3) Prerequisite: six credit hours in cartography or permission of department. Repeatable to 6 credits if content differs. Special topics in cartography for advanced students. Topics can include problems of cartographic management; special use maps; automated map production; map pattern perception; tabular information from maps; map projections, transformations, and new technologies.

GEOG 480 Advanced Remote Sensing (3) Prerequisite: GEOG 372 or introductory remote sensing course in another department. Project-oriented approach to specific applications of remote sensing. Use of numerical, digital data and pictoral images from aircraft and space vehicles. Image display and enhancement. Applications in resources management and environmental studies.

GEOG 481 Advanced Computer Mapping (3) Prerequisite: GEOG 373 or permission of department. Advanced concepts in automated cartography. Computerized map projections and displays. Computer-assisted map design and symbolization.

GEOG 482 Geographic Information Systems (3) Prerequisite: GEOG 373 or permission of department. The construction and use of computer-based information systems. The collection, manipulation and automated display of geographical data. Applications in areas such as resource management, political districting, terrain analysis, and community planning.

GEOG 483 Survey of Computer Facilities for Geography and Urban Studies (1) The PRIME computer system. Graphics terminals, digitizers, plotters. File creation and use (PRIMOS), software for statistical analysis (MINITAB), relational data base management system (INFO), digitizing (DIGSRF2), contour mapping (SURFACE II), mapping of census data (CHOROMAP), symbol mapping (GIMMS). Other computer facilities on campus.

GEOG 484 Biogeography (3) The principles of biogeography, including the existing geographical distributions of living organisms from the local to global scale, the processes responsible for these patterns, and possible future changes in distributions as a result of global changes.

GEOG 498 Topical Investigations (1-3) Restricted to advanced undergraduate students with credit for at least 24 hours in geography and to graduate students. Any exceptions should have approval of department. Repeatable to 6 credits if content differs. Independent study under individual guidance.

GEOL — Geology

GEOL 100 Physical Geology (3) Credit will be granted for only one of the following: GEOL 100 or GEOL 101. A general survey of the rocks and minerals composing the earth, its surface features and the agents that form them, and the dynamic forces of plate tectonics.

GEOL 102 Historical Geology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: GEOL 100 or GEOL 101. Earth's history as revealed through the principles of stratigraphy and the processes of physical geology. Emphasis on formations and geologic development of the North American continent.

GEOL 110 Physical Geology Laboratory (1) Three hours of laboratory per week. Pre- or corequisite: GEOL 100 or GEOL 101. The basic materials and tools of physical geology stressing familiarization with rocks and minerals and the use of maps in geologic interpretations.

GEOL 120 Environmental Geology (3) A review of geologic factors underlying many environmental problems and the interactions between population and physical environment: geologic hazards, land-use planning, conservation, mineral resources, waste disposal, land reclamation and the geologic aspects of health and disease. The course is aimed at lower division students in education and liberal arts, and should be useful to any student concerned with geologic perspectives of environmental problems.

GEOL 123 Causes and Implications of Global Change (3) Also offered as BOTN 123, GEOG 123, and METO 123. Credit will be granted for only one of the following: BOTN 123, GEOG 123, GEOL 123, or METO 123. This course offers a unique experience in integrating physical, chemical, geological, and biological sciences with geographical, economic, sociological and political knowledge skills toward a better understanding of global change. Review of environmental science relating to weather and climate change, acid precipitation, ozone holes, global warming, and impacts on biology, agriculture, and human behavior. Study of the natural, long-term variability of the global environment, and what influence mankind may have in perturbing it from its natural evolution. Concepts of how physical, biological, and human behavioral systems interact, and the repercussions which may follow from human endeavors. The manner in which to approach decision and policy making related to issues of global change.

GEOL 210 Gems and Gemstones (3) A survey of the origin, occurrences, properties, fashioning, and treatments of natural and synthetic materials, with emphasis on diamonds and colored stones.

GEOL 212 Planetary Geology (3) An examination of the geological and geochemical processes at work in the solar system from the perspectives supplied by space age exploration of the planets and other solar system bodies.

GEOL 301 Evolution in Geology (3) Prerequisite: a college-level physical or biological science course with laboratory. An analysis of data, assumptions and logical structure of seafloor spreading and continental drift, biological evolution and the geological record, the concept of geologic time, catastrophism in geology, and "creationist geology."

GEOL 302 Analysis of Environmental Pollution of Mining and Mineral Utilization (3) Prerequisite: GEOL 100 and CHEM 103 or permission of department. Sources and nature of pollution derived from the mining and utilization of ore minerals. Analysis of the appropriateness of current government regulations.

GEOL 322 Mineralogy (4) Two hours of lecture and two hours of laboratory per week. Prerequisite: GEOL 110 and CHEM 103. Basic mineralogy for geology majors. The principles of morphologic crystallography, crystal chemistry, and determinative mineralogy.

GEOL 331 Invertebrate Paleontology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: GEOL 102. A systematic review of the morphology, classification, interrelationships and geologic significance of all the commonly fossilized invertebrate phyla.

GEOL 340 Geomorphology (4) Three hours of lecture and three hours of laboratory per week. Two Saturday field trips. Prerequisites: GEOL 101 or (GEOL 100 and GEOL 110). Analysis of landforms, organized on the basis of the geological processes that have operated during the late Cenozoic. Constructional and erosional landforms related to physical systems operating on geologic structures through time.

GEOL 341 Structural Geology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: GEOL 102 or permission of department. Deformation of the earth's crust; stress and strain; mechanical behavior of rocks; origin and significance of structural features. Construction of geologic maps and cross sections; stereographic and orthographic representation of structures.

GEOL 342 Sedimentation and Stratigraphy (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: GEOL 322 or permission of department. Description, origin and distribution of sediments and sedimentary rocks. Mandatory field trip.

GEOL 375 General Oceanography (3) Formerly GEOL 475. Introduction to the processes shaping the marine environment. The geological and biological processes contributing significantly to the geological record and the environment.

GEOL 393 Technical Writing for Geoscientists (3) Prerequisites: ENGL 101 and completion of any two of the following and concurrent registration in the third: GEOL 341, GEOL 331 and GEOL 322. For GEOL majors only. Planning, writing and presenting a plan for research in the geosciences.

GEOL 394 Research Problems in Geology (3) Prerequisite: GEOL 393. Investigation of a specific laboratory, library or field problem. Written and oral presentation of the study

GEOL 410 Industrial Rocks and Minerals (3) Prerequisite: GEOL 322. The origin; occurrence; mineralogy; extraction and treatment technology; production and deposit-evaluation of rocks and minerals used in the construction, ceramic, chemical and allied industries. Restricted to non-fuels, non-metallic, non-gem materials. Field trips to industrial locations are required.

GEOL 423 Optical Mineralogy (3) One hour of lecture and four hours of laboratory per week. Prerequisite: GEOL 322. The optical behavior of crystals with emphasis on the theory and application of the petrographic microscope.

GEOL 432 Biostratigraphy (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: GEOL 331. Principles of biostratigraphy, paleoecology and paleogeology. Laboratory study emphasizes significant index fossils.

GEOL 434 Micropaleontology (3) Two lectures and one laboratory per week. Prerequisite: GEOL 331. A systematic review of the morphology, classification, ecology and geologic ranges of important microfossil groups, particularly ostracodes and foraminifera

GEOL 436 Regional Geology of North America (3) Prerequisite: GEOL 102. A systematic study of the regional geology of North America including history, structure, stratigraphy and petrology of the physiographic provinces of the United States, Canada and the Caribbean.

GEOL 443 Petrology (4) Two lectures and one laboratory per week. Prerequisite: GEOL 322. Corequisite: GEOL 423. Study of igneous and metamorphic rocks: petrogenesis; distributions; chemical and mineralogical relations; macroscopic and microscopic descriptions; geologic significance.

GEOL 444 Petrography (3) One lecture and two laboratories per week. Prerequisite: GEOL 423, GEOL 342. Microscopic thin-section studies of rocks stressing the description and classification of igneous and metamorphic rocks.

GEOL 445 Principles of Geochemistry (3) Prerequisites: CHEM 103; and GEOL 322. An introduction to the basic principles of geochemistry including geothermometry, geobarometry, geochronology and the genesis of natural inorganic materials.

GEOL 446 Geophysics (3) Two lectures and one laboratory per week. Prerequisite: PHYS 142. An introduction to the basic theories and principles of geophysics stressing such important applications as rock magnetism, gravity anomalies, crustal strain and earthquakes, and surveying.

GEOL 447 Geochemistry of Fuels (3) Prerequisite: CHEM 104. Discussion of the progenitors and the biochemical, chemical and physical agencies that convert them into crude oils, coals of various ranks, natural gas and other organic fuels. The origin, composition, mineralogy and organic constituents (kerogen) of oil shales. Mineralogy, geochemical cycles and accumulation of uranium and thorium.

GEOL 448 Introduction to Solid-Earth Geophysics (3) Prerequisites: GEOL 100 and PHYS 141; and MATH 140. Recommended: GEOL 446. Nature and description of the solid earth as revealed by seismology; magnetic and gravity field studies; and geothermal methods. Development of plate tectonic theory. Earthquake predictions efforts; mantle thermal convection; fluid motion in Earth's core; space-related method for direct detection of plate motion (GPS, VLBL, and SLR).

GEOL 451 Groundwater Geology (3) Prerequisite: GEOL 100 or GEOL 101. An introduction to the basic geologic parameters associated with the hydrologic cycle. Problems in the accumulation, distribution and movement of groundwater will be analyzed.

GEOL 452 Watershed and Wetland Hydrology (3) Recommended: introductory geology. 56 semester hours. Junior standing. Physical processes by which water moves in watershed and wetland systems. Topics include: precipitation, infiltration, flow in the unsaturated zone, streamflow generation processes, and groundwater flow.

GEOL 453 Economic Geology (3) Two laboratories per week. Prerequisite: GEOL 322. A study of the geology of metallic ore deposits stressing ore-forming processes, configuration of important ore bodies, and familiarization with characteristic ore mineral suites.

GEOL 456 Engineering Geology (3) Two lectures and one laboratory per week. Prerequisite: GEOL 341. A study of the geological problems associated with the location of tunnels, bridges, dams and nuclear reactors, slope control, and natural hazards.

GEOL 462 Geological Remote Sensing (3) One lecture and two laboratories per week. Prerequisite: GEOL 341 and GEOL 342. An introduction to geological remote sensing including applications of aerial photographic interpretation to problems in regional geology, engineering geology, structural geology, and stratigraphy. Films, filters, and criteria used in selecting imagery are also discussed. Laboratory exercises include measurements of geologic parameters and compilation and transference of data to base maps.

GEOL 471 Geochemical Methods of Analysis (3) Prerequisite: CHEM 103 and CHEM 113. Principles and application of geochemical analysis as applied to a variety of geological problems. X-ray and optical spectroscopy, X-ray diffraction, atomic absorption, electron microprobe and electron microscopy.

GEOL 472 Tectonics (3) Prerequisite: GEOL 341. Selected tectonic elements of organic belts through out the world viewed in the framework of plate tectonics and sea floor spreading.

GEOL 490 Geology Field Camp (6) Prerequisite: GEOL 390 or equivalent. Three-week intense field geology course taught off campus during the summer. Students describe and compile maps of formations and structures from outcrops, subsurface, and remotely sensed data. Special fees required.

GEOL 499 Special Problems in Geology (1-3) Prerequisites: GEOL 102; and GEOL 110 or equivalent; and permission of department. Intensive study of a special geologic subject or technique selected after consultation with instructor. Intended to provide training or instruction not available in other courses which will aid the student's development in his or her field of major interest.

GERM — German

GERM 101 Elementary German I (4) One hour of laboratory and four hours of discussion/recitation per week. Formerly GERM 111. Introduction to basic structures and pronunciation by emphasis on the four skills: listening, speaking, reading and writing. Readings concern the current life-style and civilization of the German-speaking world.

GERM 102 Elementary German II (4) One hour of laboratory and four hours of discussion/recitation per week. Prerequisite: GERM 101 or equivalent. Formerly GERM 112. A continuation of GERM 101, completing the introduction of basic structures and continuing the involvement with the civilization of the German-speaking world.

GERM 103 Review of Elementary German (4) One hour of laboratory and four hours of discussion/recitation per week. Prerequisite: assignment either by placement examination or by the undergraduate director (Germanic Section). Designed specifically for students who are too advanced for GERM 101 but are not sufficiently prepared to take GERM 102. GERM 103 covers the coursework to the completion of GERM 102 in one semester.

GERM 148 Germanic Languages - Elementary I (3) Repeatable to 6 credits if content differs. Basic instruction in a Germanic language other than German; Yiddish and Swedish are offered regularly, Danish, Netherlandic, and Norwegian when demand is sufficient. Subtitle will reflect the language. May be repeated in a different language.

GERM 149 Germanic Languages - Elementary II (3) Prerequisite: GERM 148 in the same language. Continuation of GERM 148. May be repeated in a different language. Subtitle will reflect the language.

GERM 201 Intermediate German I (4) One hour of laboratory and four hours of discussion/recitation per week. Prerequisite: GERM 102. Grammar review and greater mastery of vocabulary, idioms, conversational fluency, and compositional skills. Readings stress the current life-style and civilization of the German-speaking world.

GERM 202 Intermediate German II (4) Four hours of lecture and one hour of laboratory per week. Prerequisite: GERM 201. Not open to students who have completed GERM 211. Credit will be granted for only one of the following: GERM 202 or GERM 211 or GERM 104 Formerly GERM 211. Continuation of GERM 201. Grammar review and greater mastery of vocabulary, idioms, conversational fluency and compositional skills. Readings stress the current life-style and civilization of the German-speaking world.

GERM 220 Introduction to German Literature (3) Prerequisite: GERM 202 or equivalent. May be taken concurrently with GERM 115. Reading and discussion of major authors with emphasis on contemporary German literature. Readings and instruction in German.

GERM 248 Germanic Languages Intermediate - I (3) Prerequisite: GERM 149 in the same language. Intermediate instruction in a Germanic language other than German. May be repeated in a different language. Subtitle will reflect the language.

GERM 249 Germanic Languages - Intermediate II (3) Prerequisite: GERM 248 in the same language. Continuation of German 248. May be repeated in a different language. Subtitle will reflect the language.

GERM 280 German-American Cultural Contrast (3) A study of German-American culture in contemporary literature.

GERM 281 Women in German Literature and Society (3) A study of changing literary images and social roles of women from the beginning of the 19th century to the present.

GERM 282 Germanic Mythology (3) An introduction to the religious beliefs of the pagan Germanic peoples. Comparison of Germanic myths with those of other Indo-European peoples. The conversion of the Germania to Christianity and the preservation of pagan beliefs in superstition and literature.

GERM 285 German Film and Literature (3) A visual approach to German literature through a study of the historical, cultural, and literary significance of German films. Representative examples from the golden age of German silent films to the new German cinema.

GERM 301 Conversation and Composition I (3) Prerequisite: GERM 202 or equivalent. Practice in contemporary spoken and written German. Systematic review of grammar, and exercise in composition. Emphasis on cultural contrasts.

GERM 302 Conversation and Composition II (3) Prerequisite: GERM 301 or equivalent. Continuation of GERM 301.

GERM 321 Highlights of German Literature I (3) Prerequisite: GERM 220 or equivalent. Selected masterworks from different periods of German literature: middle ages, reformation, baroque, 18th century, classicism. Readings and instruction in German.

GERM 322 Highlights of German Literature II (3) Prerequisite: GERM 220 or equivalent. Selected masterworks from different periods of German literature. romanticism, Biedermeier, Junges Deutschland, realism, naturalism and its counter currents, expressionism to the present. Readings and instruction in German.

GERM 339 German Literature in Translation (3) Repeatable to 6 credits if content differs. Selected movements, genres or other special topics in German literature. Readings and instruction in English. May not be counted in the fulfillment of German major requirements in German literature.

GERM 349 Germanic Literatures in Translation (3) Repeatable to 6 credits if content differs. Study of an important author, period or theme in a Germanic literature other than German: Yiddish, Netherlandic or Scandinavian. Readings and instruction in English.

GERM 368 Scandinavian Civilization (3) Repeatable to 6 credits if content differs. Literary, artistic and historic traditions, folklore and superstition, customs and life-style shared by Scandinavian nations. Readings and instruction in English.

GERM 369 Scandinavian Literature in Translation (3) Repeatable to 6 credits if content differs. Study of a major Scandinavian author, genre, period or theme. Readings and instruction in English.

GERM 371 Ancient Indic Culture and Civilization (3) An introduction to the culture and civilization of Ancient India: the religion, literature, arts, ethics and law of the vedic period, younger Hinduism, and Buddhism. Reconstruction of each period's lifestyle with emphasis on the historic development of the principles which ruled everyday activities. Instruction and readings in English.

GERM 372 Ancient Celtic Culture and Civilization (3) An introduction to the culture and civilization of the Ancient Celts; the religion, arts, ethics and law of the continental and island Celts. Focus on the Ulster and Fenian cycles in Ireland, Taliesin, Aneirin and the Mabinogion in Wales. Reconstruction of the lifestyle of the period. Instruction and readings in English.

GERM 381 German Civilization I (3) A survey of the literary, educational and artistic traditions, great men and women, customs and general culture of the German-speaking world from the beginnings to the middle of the 19th century. All readings and instruction are in English.

GERM 382 German Civilization II (3) A continuation of GERM 381 covering the development of German, Austrian and Swiss civilizations from the middle of the 19th century to the present. All readings and instruction are in English.

GERM 383 Viking Culture and Civilization (3) An introduction to the lifestyle of northern Europe in the 9th to 11th centuries. Readings and instruction in English.

GERM 384 Germanic Chivalric Culture (3) An introduction to the lifestyle of northern Europe in the 12th to 14th centuries. Readings and instruction in English.

GERM 389 Topics in Germanic Culture (3) Repeatable to 6 credits if content differs. Topics in the cultures of the German, Germanic, Indo-European peoples and of their culturally related non-Indo-European neighbors. In English.

GERM 397 Honors Reading (Independent Study) (3) Supervised reading to be taken normally only by students admitted into honors program.

GERM 401 Advanced Conversation (3) Prerequisite: GERM 302 or equivalent. Development of fluency in spoken German. Discussion of contemporary issues.

GERM 403 Advanced Composition (3) Prerequisite: GERM 302 or equivalent. Advanced instruction in writing skills.

GERM 405 Stylistics (3) Prerequisite: GERM 302 or equivalent. Stylistic analysis of oral and written German both literary and non-literary. Intensive study of vocabulary and syntax. Dictionary and composition exercises.

GERM 411 German for International Business I (3) Prerequisite: GERM 302 or equivalent or permission of department. Advanced skills in German for international business, including understanding and writing correspondence, reports, graphics, ads, etc., according to current German commercial style.

GERM 412 German for International Business II (3) Prerequisite: GERM 411 or equivalent or permission of department. Continuation of GERM 411.

GERM 415 German-English Translation I (3) Does not fulfill major requirements in German. Not open to students who have completed GERM 101, GERM 102, GERM 201, GERM 202, GERM 301 or GERM 302. An intensive presentation of German grammar limited exclusively to reading skill; graded readings in the arts and sciences. Instruction in English, cannot be used to satisfy the arts and humanities foreign language requirement.

GERM 416 German-English Translation II (3) Prerequisites: GERM 302 and GERM 415 or equivalent. Written translation of materials from the student's field of study. Discussion of basic problems of German-to-English translation, with examples from students' projects. Instruction in

English. Cannot be used to satisfy the arts and humanities foreign language requirement.

GERM 419 Selected Topics in German Language Study (3) Prerequisite: GERM 302 and permission of department. Repeatable to 6 credits if content differs.

GERM 421 Literature of the Middle Ages (3) Prerequisite: GERM 321 and 322 or permission of department. German literature from the 8th through the 15th centuries. Readings include old high German texts; the German heroic, courtly and popular epic; Minnesang, Meistersang, the late Medieval epic; folk literature of the late Middle Ages. Read in modern German translation.

GERM 422 From the Reformation Through the Baroque (3) Prerequisite: GERM 321 and GERM 322 or permission of department. Readings of representative authors from the reformation and the period of humanism through the baroque (ca 1517-1720). Readings and instruction in German.

GERM 423 From Enlightenment through Storm and Stress (3) Prerequisite: GERM 321 and GERM 322, or permission of department. Readings of representative authors from the Enlightenment (1720-1785), the Age of Sentimentalism (1740-1780), and Storm and Stress (1767-1785). Readings and instruction in German.

GERM 424 Classicism (3) Prerequisite: GERM 321 and GERM 322, or permission of department. Readings of representative authors from the Age of Classicism (1786-1832). Readings and instruction in German.

GERM 431 Romanticism and Biedermeier (3) Prerequisite: GERM 321 and GERM 322, or permission of department. Readings of representative authors from the periods of Romanticism (1798-1835) and Biedermeier (1820-1850). Readings and instruction in German.

GERM 432 Junges Deutschland and Realism (3) Prerequisite: GERM 321 and 322, or permission of department. Readings of representative authors from the periods of Junges Deutschland (1830-1850) and Realism (1850-1890). Readings and instruction in German.

GERM 433 Naturalism and Its Counter Currents (3) Prerequisite: GERM 321 and GERM 322, or permission of department. Readings of representative authors from the period of naturalism and its counter currents (1880-1920). Readings and instruction in German.

GERM 434 Expressionism to 1945 (3) Prerequisite: GERM 321 and GERM 322, or permission of department. Readings of representative authors from Expressionism through the period between the wars to the contrast of Nazi and Exile Literature (ca. 1910-1945). Readings and instruction in German.

GERM 435 From 1945 to the Present (3) Prerequisite: GERM 321 and GERM 322, or permission of department. Readings of representative authors from the "Two Germanies," Austria, and Switzerland in the period from the end of World War II to the present. Readings and instruction in German.

GERM 439 Selected Topics in German Literature (3) Prerequisites: (GERM 321 and GERM 322) or permission of department. Repeatable to 6 credits if content differs. Special study of an author, school, genre, or theme. Readings and instruction in German.

GERM 449 Selected Topics in Germanic Studies (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Study of a linguistic, literary or cultural topic in Yiddish, Netherlandic, or Scandinavian studies.

GERM 461 Reading Swedish, Danish and Norwegian I (3) Not open to students who have completed GERM 148S, GERM 149S, GERM 148D, GERM 149D, GERM 148N or GERM 149N. Develops reading facility in three languages in one semester. Texts read include Bergman's Seventh Seal, tales by H.C. Andersen, excerpts from works by Ibsen and Hamsun, and selected folk literature. No foreign language prerequisite.

GERM 462 Reading Swedish, Danish and Norwegian II (3) GERM 461 or permission of department. Further development of reading facility.

GERM 463 The Icelandic Family Saga (3) Analysis of the old Norse saga as historiography, literature, and folklore. Readings and instruction in English.

GERM 472 Introduction to Germanic Philology (3) Prerequisite: GERM 202 or equivalent. Reconstructed proto-Germanic and surveys of Gothic, Old Norse, Old English, Old Saxon. The development of High German from the Old High German period through Middle High German to modern German; a short introduction to modern German dialectology. Instruction in English.

GERM 475 Old Norse (3) The language of the old Icelandic saga, the Eddas and Skaldic poetry. Reading of texts in the original; historical development of Old Norse and its role in the Germanic language family. No knowledge of German or a Scandinavian language required; instruction in English.

GERM 476 Sanskrit I (3) Introduction to reading Sanskrit text in Devanagari script. Descriptive and historic/comparative grammar stressing Indo-European origins and comparison with Classical and modern European languages.

GERM 477 Sanskrit II (3) Prerequisite: GERM 476. Continuation of GERM 476. Completion of grammatical introduction. Reading of epic, folkloric, and vedic texts.

GERM 479 Selected Topics in Germanic Philology (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected topics such as comparative Germanic studies, Old Norse language or readings in Old Norse literature, modern German dialectology.

GERM 489 Selected Topics in Area Studies for International Business (1-3) Prerequisite: GERM 302 or equivalent or permission of department. Recommended: GERM 411 or GERM 412. Repeatable to 6 credits if content differs. Selected topics in German area studies of specific interest to international business students.

GERM 499 Directed Study (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

GNED — General Education

GNED 100 The Anatomy of Knowing: The University and Its Curriculum (3) Open to students with freshman and sophomore standing. An exploration of the ways of understanding the world that characterize the three large areas of university study: the sciences, the social sciences, and the arts and humanities. Students will have the opportunity to develop, in consultation with faculty, their personal plans for intellectual exploration. Open to students with freshman and sophomore standing.

GNED 189 College Park Seminar (3) Not open to upperclass students who have completed more than 27 semester hours (including current registration). Repeatable to 3 credits if content differs. Each seminar will be taught by regular faculty and comprised of no more than twenty students. The seminars will satisfy a Distributive Studies requirement and afford students an intense introduction to undergraduate education with emphasis on analytical and critical thinking.

GNED 288 Introduction to British Culture (3) Aspects of British culture they will encounter during their stay in London for students in the Study in London Program. An historical introduction to the development of London, illustrating the city's dominant role in British life and culture. Studies of the different communities, the media, architecture, the relationship between the community and the arts, environmental issues, as well as the political and commercial life of the city.

GNED 300 Perspectives on Nuclear War (3) Nuclear weapons are an important issue facing the world today. A multidisciplinary approach to the issue of nuclear war, drawing upon the resources of many departments on campus and organizations off campus. The mechanics of nuclear weapons and delivery systems, and the biological, psychological, medical, and meteorological effects of the use of nuclear weapons. The history of confrontation, development of arms policies, and efforts at arms control.

GREK — Greek

GREK 101 Elementary Ancient Greek I (4) A student who has had two units of Greek in high school may register for GREK 101 for purposes of review but not for credit. Study of basic grammar, development of reading facility, and introduction to Athenian life and culture in the fifth century B.C.

GREK 102 Elementary Ancient Greek II (4) Prerequisite: GREK 101 or equivalent. Continuing development of basic grammar and reading skills; study and discussion of central aspects of Greek culture.

GREK 201 Intermediate Ancient Greek (4) Prerequisite: GREK 102 or equivalent. Advancing beyond the basic skills developed in GREK 101 and GREK 102; review of selected grammatical concepts; continuous reading of passages from Greek literature.

GREK 301 Euripides (3) Credit will be granted for only one of the following: GREK 301 or GREK 351. Formerly GREK 351.

GREK 352 The New Testament (3)

GREK 353 Herodotus (3)

GREK 354 Greek Lyric Poetry (3) Selections in translation of Greek literature from Homer to Lucian, with special emphasis on epic and dramatic poetry.

GREK 402 Greek Philosophers (3)

GREK 403 Greek Tragedy (3)

GREK 406 Greek Epigraphy (3)

GREK 415 Homer (3) Prerequisite: permission of department. Extensive readings in Greek from the Iliad and the Odyssey, with special attention to the features of Homeric style and the similarities and differences between the two epics.

GREK 488 Greek Readings (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. The reading of one or more selected Greek authors. Reports.

GREK 490 Survey of Greek Literature (3) Greek literature, including authors, genres and periods. The reading of selections from many of the major authors, combined with the study of the history of Greek literature. Review of Greek grammar.

GREK 499 Independent Study in Greek Language and Literature (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

GVPT — Government and Politics

GVPT 100 Principles of Government and Politics (3) A study of the basic principles and concepts of political science.

GVPT 170 American Government (3) A comprehensive study of national government in the United States-national, state and local.

GVPT 200 International Political Relations (3) Prerequisite: GVPT 100. Formerly GVPT 300. A study of the major factors underlying international relations, the methods of conducting foreign relations, the foreign policies of the major powers, and the means of avoiding or alleviating international conflicts.

GVPT 210 Introduction to Public Administration and Policy (3) Prerequisite: GVPT 170. An introduction to the study of the administrative process in the executive branch with an examination of the concepts and principles of administration and their relationship to public policy. The organizational structure, theory and the behavior of participants in the administration of policy.

GVPT 220 Introduction to Political Behavior (3) Prerequisite: GVPT 100 or GVPT 170. Development, concepts and techniques of the behavioral approach to political science and other recent developments in the field.

GVPT 231 Law and Society (3) Prerequisite: GVPT 170. A study of the basis of law and its relationship with various contemporary institutions such as the courts, the legal profession, and society at large.

GVPT 240 Political Ideologies (3) Prerequisite: GVPT 100. A survey and analysis of the leading ideologies of the modern world, including anarchism, communism, socialism, fascism, nationalism, and democracy.

GVPT 260 State and Local Government (3) Prerequisite: GVPT 170. A study of the functioning and problems of state and local government in the United States, with illustrations from Maryland jurisdictions.

GVPT 272 The Politics of Race Relations in the United States (3) Prerequisite: GVPT 170. Political dimension of historical and contemporary racial cleavage in the United States with particular emphasis on the post World War II period.

GVPT 273 Introduction to Environmental Politics (3) Prerequisite: GVPT 170. A comprehensive overview of environmental problems, institutions, policies, practices, and remedies found in present-day world society, with special emphasis on environmental matters as objects of American public policy, both domestic and foreign.

GVPT 280 Comparative Politics and Governments (3) Prerequisite: GVPT 100. An introduction to the comparative study of politics and governance, including the analytical frameworks for studies of politics and governmental institutions and a survey of the major types of European regimes.

GVPT 282 The Government and Politics of the Third World (3) Prerequisite: GVPT 100. A study of the governmental institutions, processes and problems, and the socio-economic environment which are common to the great majority of the third world states of Africa, The Middle East, Asia, and Latin America; and in which internal politics develop.

GVPT 306 Global Ecopolitics (3) Prerequisite: GVPT 200. Consideration of global problems such as the growth controversy, agricultural productivity, pollution, resource depletion, the energy crisis, and the general impact of science and technology on the world ecological, socio-economic, and political system, with particular emphasis on such matters as objects of public policy.

GVPT 321 Intermediate Formal Theories of Political Behavior and Politics (3) Prerequisite: GVPT 221 or permission of department. Analysis of the theory of games, social choice, voting and such notions of social welfare as distributive justice and liberty.

GVPT 341 Political Morality and Political Action (3) Prerequisite: GVPT 100. The ethical problems implicit in public actions by individuals, groups, and government. Selected topics in contemporary political theory such as distribution, participation, and equality.

GVPT 343 Political Themes in Contemporary Literature (3) Prerequisite: GVPT 100. An analysis of political concepts and issues in novels, plays and poetry drawn largely from the twentieth century. Among the themes considered in the course are the nature and limits of power, conflict, leadership, submissiveness, rebellion, and loyalty.

GVPT 376 Applied Field Research in Government and Politics (6) Prerequisite: GVPT 170. Corequisite: GVPT 377. Students in this course participate as interns in an agency of government or in some other appropriate political organization. Assignments are arranged to provide students with insights into both theoretical and practical aspects of politics. Under the tutelage of the host agency and an academic adviser, students conduct a major research project of mutual interest to the student and his or her host agency in the field of government and politics.

GVPT 377 Seminar For Academic Interns (3) Prerequisite: GVPT 170. Corequisite: GVPT 376. The application of major concepts of political science to the realities of the political process. Readings and discussion attempt to relate the experiences of the academic interns to appropriate literature on the subject of political decision-making.

GVPT 388 Topical Investigations (3) Prerequisite: one 200-level GVPT course. Independent research and writing on selected topics in government and politics.

GVPT 390 Honors Seminar in American Government and Public Administration (3) Prerequisite: admission to honors program. Directed reading, reporting and discussion on the major materials of historical and contemporary relevance in the fields of American government and public administration.

GVPT 391 Honors Seminar in Comparative Government and International Relations (3) Prerequisite: admission to honors program. Directed reading, reporting and discussion centering on the major materials of historical and contemporary relevance in the fields of comparative government and international relations.

GVPT 392 Honors Seminar in Public Law and Political Theory (3) Prerequisite: admission to honors program. Directed reading, reporting and discussion centering on the major materials of historical and contemporary relevance in the fields of public law and political theory.

GVPT 393 Honors Seminar in Public Policy, Political Behavior, and Methodology (3) Prerequisite: admission to honors program. Directed reading, reporting and discussion centering on the major materials of historical and contemporary relevance in the fields of public policy and political behavior.

GVPT 396 Introduction to Honors Research (3) Prerequisite: admission to and permission of GVPT Honors Program. A required course for all honors students designed to emphasize library, research, methodology, and writing skills in political science and political philosophy. A written proposal, bibliography and research design for an honors paper required of all students as a final project.

GVPT 397 Honors Research (3) Prerequisite: GVPT 396 and admission to GVPT honors program. Individual reading and research. Preparation of an original paper.

GVPT 399 Seminar in Government and Politics (3) Prerequisite: one 200-level GVPT course. Reading, research, discussion, analysis, and writing in the area of politics. Both substantive issues and methodological approaches will be considered. Primarily for government and politics undergraduate majors.

GVPT 401 Problems of World Politics (3) Prerequisite: GVPT 200. A study of governmental problems of international scope, such as causes of war, problems of neutrality, and propaganda. Students are required to report on readings from current literature.

GVPT 402 International Law (3) Prerequisite: GVPT 200. A study of the basic character, general principles and specific rules of international law, with emphasis on recent and contemporary trends in the field and its relation to other aspects of international affairs.

GVPT 403 Law, Morality and War (3) Prerequisite: GVPT 200. An exploration of fundamental moral and legal issues concerning war.

GVPT 405 Defense Policy and Arms Control (3) Prerequisite: GVPT 200. Contemporary issues of military strategy and international security are covered, including: nuclear war, conventional (limited) war, guerrilla insurgency, arms control, disarmament, moderation of war, defense policy processes, and defense economics.

GVPT 411 Public Personnel Administration (3) Prerequisite: GVPT 210. A survey of public personnel administration, including the development of merit civil service, the personnel agency, classification, recruitment, examination techniques, promotion, service ratings, training, discipline, employee relations, and retirement.

GVPT 412 Public Financial Administration (3) Prerequisite: GVPT 210. A survey of governmental financial procedures, including processes of current and capital budgeting, the administration of public borrowing, the techniques of public purchasing, and the machinery of control through pre-audit and post-audit.

GVPT 413 Governmental Organization and Management (3) Prerequisite: GVPT 210. A study of the theories of organization and management in American government with emphasis on new trends, experiments and reorganizations.

GVPT 414 Administrative Law (3) Prerequisite: GVPT 210. A study of the discretion exercised by administrative agencies, including analysis of their functions, their powers over persons and property, their procedures, and judical sanctions and controls.

GVPT 422 Quantitative Political Analysis (3) Prerequisite: GVPT 220. Introduction to quantitative methods of data analysis, including selected statistical methods, block analysis, content analysis, and scale construction.

GVPT 423 Elections and Electoral Behavior (3) Prerequisite: GVPT 220. An examination of various topics relating to elections; the focus includes the legal structure under which elections are conducted, the selection and nomination process, the conduct of election campaigns, and patterns of political participation and voting choice in different types of elections.

GVPT 426 Public Opinion (3) Prerequisite: GVPT 220. An examination of public opinion and its effect on political action, with emphasis on opinion formation and measurement, propaganda and pressure groups.

GVPT 427 Political Sociology (3) Prerequisite: GVPT 220. A study of the societal aspects of political life including selected aspects of the sociology of group formation and group dynamics, political association, community integration and political behavior.

GVPT 428 Topics in Formal Theories of Political Behavior and Politics (3) Prerequisite: GVPT 221 or permission of department. Repeatable to 6 credits if content differs. An evaluation of theories of political behavior such as game, social choice and voting theory, and their applications to problems of distribution and social justice, community organizing, responsive public policy, institutional design, and alliance and coalition formation.

GVPT 429 Problems in Political Behavior (3) Prerequisite. GVPT 220. The problem approach to political behavior with emphasis on theoretical and empirical studies on selected aspects of the political process.

GVPT 431 Introduction to Constitutional Law (3) Prerequisite: GVPT 231. A systematic inquiry into the general principles of the American constitutional system, with special reference to the role of the judiciary in the interpretation and enforcement of the federal constitution.

GVPT 432 Civil Rights and the Constitution (3) Prerequisite: GVPT 231. A study of civil rights in the American constitutional context, emphasizing freedom of religion, freedom of expression, minority discrimination, and the rights of defendants.

GVPT 433 The Judicial Process (3) Prerequisite: GVPT 231. An examination of judicial organization in the United States at all levels of government, with some emphasis on legal reasoning, legal research and court procedures.

GVPT 434 Race Relations and Public Law (3) Prerequisite: GVPT 231. A political and legal examination of the constitutionally protected rights affecting racial minorities and of the constitutional power of the federal courts, congress, and the executive to define, protect and extend these rights.

GVPT 436 The Legal Status of Women (3) Prerequisite GVPT 231. An examination of judicial interpretation and application of common, statutory, and constitutional law as these affect the status of women in American society.

GVPT 441 History of Political Theory: Ancient and Medieval (3) Prerequisite: GVPT 100. A survey of the principal political theories set forth in the works of writers before Machiavelli.

GVPT 442 History of Political Theory—Medieval to Recent (3) Prerequisite: GVPT 100. A survey of the principal theories set forth in the works of writers from Machiavelli to Nietzsche.

GVPT 443 Contemporary Political Theory (3) Prerequisite: GVPT 100. A survey of the principal political theories and ideologies set forth in the works of writers from Karl Marx to the present.

GVPT 444 American Political Theory (3) Prerequisite: GVPT 100 or GVPT 170. A study of the development and growth of American political concepts from the Colonial period to the present.

GVPT 445 Russian Political Thought (3) Prerequisite: GVPT 100. A survey and analysis of political ideas in Russia and the Soviet Union from early times to the present.

GVPT 448 Non-Western Political Thought (3) Prerequisite: GVPT 100; permission of department required for repeat. Examination of works by major authors and general themes of political thought originating in Asia, the Middle East, and Africa. This is not a survey of all non-western political thought, but a course to be limited by the professor with each offering.

GVPT 450 Comparative Study of Foreign Policy Formation (3) Prerequisite GVPT 200. The opportunity to learn the theoretical underpinnings of foreign policy decision-making and to apply this knowledge in a simulation of a "real world" negotiation arena.

GVPT 451 Foreign Policy of the U.S.S.R. (3) Prerequisite GVPT 280 or GVPT 282. A study of the development of the foreign policy of the Soviet Union, with

attention paid to the forces and conditions that make for continuities and changes from Tsarist policies.

GVPT 453 Recent East Asian Politics (3) Prerequisite: GVPT 280 or GVPT 282. The background and interpretation of recent political events in East Asia and their influence on world politics.

GVPT 454 Contemporary African Politics (3) Prerequisite: GVPT 280 or GVPT 282. A survey of contemporary development in the international politics of Africa, with special emphasis on the role of an emerging Africa in world affairs.

GVPT 455 Contemporary Middle Eastern Politics (3) Prerequisite: GVPT 280 or GVPT 282. A survey of contemporary development in the international politics of the Middle East, with special emphasis on the role of emerging Middle East nations in world affairs.

GVPT 457 American Foreign Relations (3) Prerequisite: GVPT 200. The principles and machinery of the conduct of American foreign relations, with emphasis on the Departments of State and Defense, and an analysis of the major foreign policies of the United States.

GVPT 460 Problems in State and Local Government (3) Prerequisite: GVPT 260. A study of the structure, procedures and policies of state and local governments with special emphasis on the state level and on intergovernmental relationships, and with illustrations from Maryland governmental arrangements.

GVPT 461 Metropolitan Government (3) Prerequisite: GVPT 260. An examination of administrative problems relating to public services, planning and coordination in a metropolitan environment.

GVPT 462 Urban Politics (3) Prerequisite: GVPT 260. Urban political process and institutions considered in the light of changing social and economic conditions.

GVPT 471 Women and Politics (3) Prerequisite: GVPT 170. An examination of patterns of political participation among women and of problems of public policy especially relevant to women.

GVPT 473 Legislatures and Legislation (3) Prerequisite: GVPT 170. A detailed survey of lawmaking and the legislative process, emphasizing the U.S. Congress and its members.

GVPT 474 Political Parties (3) Prerequisite: GVPT 170. A descriptive and analytical examination of American political parties, nominations, elections, and political leadership.

GVPT 475 The Presidency and the Executive Branch (3) Prerequisite: GVPT 170. An examination of the U.S. presidency in historical and contemporary perspective: nomination and electoral politics and the president's place in policy-making, administration, and public opinion.

GVPT 479 Problems of American Public Policy (3) Prerequisite: GVPT 170. The background and interpretation of various factors which affect the formation and execution of American public policy.

GVPT 480 Comparative Political Systems (3) Prerequisite: GVPT 280 or GVPT 282. A study, along functional lines, of major political institutions, such as legislatures, executives, courts, bureaucracies, public organizations, and political parties.

GVPT 481 Government and Administration of the Soviet Union (3) Prerequisite: GVPT 280 or GVPT 282. A study of the adoption of the communist philosophy by the Soviet Union, of its governmental structure and of the administration of government policy in the Soviet Union.

GVPT 482 Government and Politics of Latin America (3) Prerequisite: GVPT 280 or GVPT 282. A comparative study of the governmental systems and political processes of the Latin American countries.

GVPT 483 Government and Politics of Asia (3) Prerequisite: GVPT 280 or GVPT 282. A comparative study of the political systems of China, Japan, India and other selected Asian countries.

GVPT 484 Government and Politics of Africa (3) Prerequisite: GVPT 280 or GVPT 282. A comparative study of the governmental systems and political processes of the African countries, with special emphasis on the problems of nation-building in emergent countries.

GVPT 485 Government and Politics of the Middle East (3) Prerequisite: GVPT 280 or GVPT 282. A comparative study of the governmental systems and political processes of the Middle Eastern countries, with special emphasis on the problems of nation-building in emergent countries.

GVPT 486 Comparative Studies in European Politics (3) Prerequisite: GVPT 280 or GVPT 282. Comparative studies in the forms of governance, political processes, and public policies in European countries.

GVPT 492 The Comparative Politics of Race Relations (3) Prerequisite: GVPT 280 or GVPT 282. Impact of government and politics on race relations in various parts of the world. The origins, problems, and manifestations of such racial policies as segregation, apartheid, integration, assimilation, partnership, and nonracialism will be analyzed.

HEBR — Hebrew

HEBR 111 Elementary Hebrew I (6) Six hours of discussion/recitation per week. Modern Israeli Hebrew. Emphasis on conversation. Study of linguistic structure and development of audio-lingual, writing and reading ability.

HEBR 112 Elementary Hebrew II (6) Six hours of discussion/recitation per week. Prerequisite: HEBR 111 or equivalent. Continuation of HEBR 111.

HEBR 211 Intermediate Hebrew I (6) Six hours of discussion/recitation per week. Prerequisite: HEBR 112 or equivalent. Study of linguistic structure, further development of audio-lingual, reading, writing, and speaking skills. Reading of texts and newspapers designed to give some knowledge of Hebrew life, thought and culture.

HEBR 212 Intermediate Hebrew II (6) Six hours of discussion/recitation per week. Prerequisite: HEBR 211 or permission of department. Continuation of HEBR 211.

HEBR 223 The Hebrew Bible: Narrative (3) Selected readings from narrative sections of the Hebrew Bible stressing the new literary approaches to the biblical text. In English; no knowledge of Hebrew required.

HEBR 224 The Hebrew Bible: Poetry and Rhetoric (3) Readings of poetic and prophetic selections from the Hebrew Bible. Analysis of devices and their rhetorical effect. Comparison of biblical poetry with other poetry of the ancient near east. In English; no knowledge of Hebrew required.

HEBR 231 Jewish Literature in Translation (3) Selections from the Bible, Talmud, medieval, and modern sources illustrating the basis and diversity of Jewish thought.

HEBR 298 Special Topics in Jewish Studies (3) Repeatable to 6 credits if content differs.

HEBR 313 Conversation and Composition I (3) Prerequisite: HEBR 212 or equivalent. A practical language course recommended for all students continuing with Hebrew. Review of grammar and composition. Selected readings. Oral and written exercises.

HEBR 314 Conversation and Composition II (3) Prerequisite: HEBR 313 or equivalent. A practical language course recommended for all students continuing with Hebrew. Review of grammar and composition. Selected readings. Oral and written exercises.

HEBR 322 Israeli Literature in Translation (3) A study of the major works of Israeli fiction and poetry which explore aspects of the society and culture of modern Israel and its European background: war and peace, the individual and the community, tradition and modernity, generational conflict.

HEBR 333 Hebrew Civilization (In English) (3) Trends in the cultural, social and literary history of the Jews from their earliest experiences as a people until Maccabean times. Readings and instruction in English.

HEBR 381 Advanced Conversation and Composition (3) Prerequisite: HEBR 314 or permission of department. Concentrated practice in spoken and written Hebrew.

HEBR 382 Readings in Hebrew Newspapers and Periodicals (3) Prerequisite: HEBR 314 or permission of department. Current events, editorials, theatrical reports, book reviews, and scholarly articles. Conducted in Hebrew.

HEBR 401 Introduction to Classical Hebrew I (3) Readings in the Bible and other classical texts in original Hebrew. Emphasis on classical grammar and vocabulary, and reading of textual passages.

HEBR 402 Introduction to Classical Hebrew II (3) Prerequisite: HEBR 401 or equivalent. Continuation of HEBR 401.

HEBR 431 Modern Hebrew Literature (3) Prerequisite: HEBR 314 or equivalent. Selected readings from the major Hebrew prose writers of the 20th century such as J. Steinberg, Burla, Berkovitz, Shofman and Agnon describing traditional Jewish life in the Diaspora and in the land of Israel.

HEBR 432 Contemporary Hebrew Literature (3) Prerequisite: HEBR 314 or equivalent. The problems facing modern man as reflected in the writings of Agnon, Hazaz, Meged, Yehoshua, Amichai, and others. Training in literary criticism. Reading of periodicals dealing with current literary trends.

HEBR 434 Jewish Literature in the Second Temple Period (3) This course will examine the diverse types of Jewish literature written between 500 BCE and 100 CE. Included will be texts from the Bible, Apocrypha, Pseudepigrapha, and Dead Sea Scrolls. Emphasis will be placed on the genres, forms of expression, and the world views reflected in these writings. In English.

HEBR 440 Reconstructing the Civilization of Ancient Mesopotamia (3) Prerequisite: one course in premodern history or non-western literature. History and culture of Ancient Mesopotamia, as reconstructed from the archeology, language and texts of the region.

HEBR 441 Studies in Classical Hebrew and Epigraphy (3) Prerequisite: HEBR 212 or equivalent. Linguistic peculiarities of Classical Hebrew from Pre-Biblical epigraphic records to the Dead Sea Scrolls. Application of the method of literary form criticism to epic poetry and Thanksgiving songs, cultic formulae, historical annals and narratives.

HEBR 442 Classical Hebrew Literature (3) Prerequisite: HEBR 212 or knowledge of Classical Hebrew. Readings in the Hebrew text of the Bible and related texts. Emphasis on the issues and methodology of modern biblical scholarship.

HEBR 451 Issues in Jewish Ethics and Law (3) Prerequisite: course in philosophy or course in Jewish studies (excluding Hebrew language) or permission of department. Also offered as PHIL 433. Credit will be granted for only one of the following: HEBR 451 or PHIL 433. Philosophical and meta-legal questions concerning the nature of Jewish law and its relation to morality.

HEBR 471 Readings in Rabbinic Hebrew (3) Prerequisite: HEBR 212 or permission of department. Introductory readings in Mishnaic and Talmudic Hebrew texts. Language of instruction English; all texts in Hebrew.

HEBR 472 Readings in Medieval Hebrew (3) Prerequisite: HEBR 212 or permission of department. Introductory readings in Medieval Hebrew texts. Language of instruction English; all texts in Hebrew.

HEBR 498 Special Topics in Hebrew (3) Repeatable to 6 credits if content differs.

HESP — Hearing and Speech Sciences

HESP 120 Introduction to Linguistics (3) An introduction to the scientific study of natural language with focus on the basic concepts of phonology, syntax, semantics and pragmatics, with subsequent attention to the applied aspects of linguistic principles.

HESP 202 Introduction to Hearing and Speech Sciences (3) Introduction to phonetics, the physiological bases of speech production and reception, and the physics of sound.

HESP 300 Introduction to Psycholinguistics (3) Prerequisite: HESP 202. An introduction to current theories of language and an investigation of their relationship to human communication behavior. Survey of the experimental literature relating to this question.

HESP 305 Anatomy and Physiology of the Speech Mechanism (3) Prerequisite: HESP 202. Anatomy, physiology, and neurology of speech mechanism.

HESP 311 Anatomy, Pathology and Physiology of the Auditory System (3) Prerequisite: HESP 202. Gross anatomy of the ear and pathways for transmission of sound energy through the peripheral and central auditory system. Causes, development and effects of pathological conditions contributing to temporary or chronic hearing impairments.

HESP 400 Speech and Language Development in Children (3) Prerequisite: HESP 300. Analysis of the normal processes of speech and language development in children.

HESP 402 Speech Pathology I (3) Prerequisite: HESP 300. Etiology, assessment and treatment of language and phonological disorders in children.

HESP 403 Introduction to Phonetic Science (3) Prerequisite: HESP 305. An introduction to physiological, acoustic and perceptual phonetics; broad and narrow phonetic transcription; current models of speech production and perception.

HESP 404 Speech Pathology II (3) Prerequisite: HESP 305. Etiology, assessment and therapeutic management of phonation, resonance, and fluency disorders in children and adults.

HESP 406 Speech Pathology III (3) Prerequisites: HESP 300 and HESP 305. Survey of the dysarthrias and aphasias in adults from an interdisciplinary point of view.

HESP 407 Bases of Hearing Science (3) Prerequisite: HESP 311. Fundamentals of hearing including the physics of sound, anatomy and physiology of peripheral and central auditory nervous system, psychophysical procedures used in measurement of auditory sensation and perception and topics in psychological acoustics.

HESP 411 Introduction to Audiology (3) Prerequisite: HESP 311. An introduction to the field of audiology. Evaluation and remediation of the hearing-handicapped.

HESP 417 Principles and Methods in Speech-Language Pathology and Audiology (3) Prerequisite: HESP 402, HESP 411. The principles underlying the treatment of speech, language and hearing disorders in children and adults.

HESP 418 Clinical Practice in Speech-Language Pathology and Audiology (3) Prerequisite: HESP 417. Repeatable to 6 credits. Supervised observation with some direct participation in clinical methods for the treatment of disorders of articulation, fluency, child and adult language; evaluation and habilitation/rehabilitation of hearing impaired children and adults.

HESP 438 Seminar: Special Issues in Early Childhood Special Education (1-3)

HESP 498 Seminar (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected topics in human communication and its disorders.

HESP 499 Independent Study (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. A directed study of selected topics pertaining to human communication and its disorders.

HIST — History

HIST 106 American Jewish Experience (3) History of the Jews in America from colonial times to the present. Emphasis on the waves of migration from Germany and Eastern Europe; the changing nature of the American Jewish community and its participation in American social, economic and political life.

HIST 110 The Ancient World (3) Formerly HIST 130. Interpretation of select literature and art of the ancient Mediterranean world with a view to illuminating the antecedents of modern culture; religion and myth in the ancient near East; Greek philosophical, scientific, and literary invention; and the Roman tradition in politics and administration.

HIST 111 The Medieval World (3) Formerly HIST 131. The development of Europe in the Middle Ages; the role of religious values in shaping new social, economic, and political institutions; medieval literature, art and architecture.

HIST 112 The Rise of the West: 1500 - 1789 (3) Formerly HIST 132. History of early modern Europe. Development of the national consciousness of European peoples. Evolution of state power and bureaucracy, economic institutions, art, literature, science and religion.

HIST 113 Modern Europe: 1789 - Present (3) Formerly HIST 133. Evolution of modern nation states. Industrial-economic structure and demography. Emergence of modern secular society.

HIST 120 Islamic Civilization (3) Formerly HIST 280. Islamic civilization. The major institution of Islam. Pre-Islamic Arabia, rise of Muhammad, basic tenets of Islam, Islamic religious law, and sectarian developments.

HIST 122 African Civilization (3) Formerly HIST 290. Sub-Saharan Africa from prehistoric times to the end of the colonial era. Neolithic civilizations, major migrations, political and commercial developments in pre-colonial Africa.

HIST 126 Jewish Civilization (3) Formerly HIST 105. Jewish history, culture, and society from Biblical times to the present.

HIST 156 History of the United States to 1865 (3) The United States from colonial times to the end of the Civil War. Establishment and development of American institutions.

HIST 157 History of the United States Since 1865 (3) The United States from the end of the Civil War to the present. Economic, social, intellectual, and political developments. Rise of industry and emergence of the United States as a world power.

HIST 170 The Humanities I (3) Formerly HIST 144. Cultural development of western civilization from pre-historic times to the Renaissance. Influences on the common cultural heritage of western civilization.

HIST 171 The Humanities II (3) Formerly HIST 145 and HIST 252. Cultural development from the Renaissance to the present. Influences on the common cultural heritage of modern western civilization.

HIST 174 Introduction to the History of Science (3) Formerly HIST 200. Major issues in the development of modern science. Specific examples of discoveries and theories from the viewpoint of theories of historical change, philosophies of science, and interaction of science with philosophy.

HIST 175 Science and Technology in Western Civilization (3) Formerly HIST 201. Key periods of change in science and technology; the causes and effects of these changes beginning with prehistory and ending with the current century.

HIST 176 Modern Business History (3) Formerly HIST 115. Evolution of the modern business system in Europe and America. Modern corporations and banks and their relations with government and the rest of society.

HIST 178 Biography in History (3) Repeatable to 6 credits if content differs. Detailed investigations in the lives, times, and works of important and visible figures in world history. Concern for both the theory of the individual in history and close examination of the single person. Course content changes semester to semester.

HIST 180 The Chinese World (3) An introduction to China, both traditional and modern. The various aspects of Chinese culture, including the language, family, history, art, and agriculture.

HIST 210 Women in America to 1880 (3) An examination of the economic, family and political roles of colonial, slave, immigrant and frontier women in America from pre-industrial colonial period through the early stages of nineteenth century industrialization and urbanization.

HIST 211 Women in America Since 1880 (3) An examination of women's changing roles in working class and middle class families, the effects of industrialization on women's economic activities and status, and women's involvement in political and social struggles including those for women's rights, birth control, and civil rights

HIST 212 Women in Western Europe, 1750-Present (3) An analysis of the economic, family, and political roles of European women from 1750 to the present. The effects of industrialization on women's work and status, the demographic parameters of women's lives, and women's participation in political events from market riots to suffrage struggles.

HIST 214 Pre-honors Colloquium in Early American History (3) Prerequisite: permission of department. Selected reading in Early American history with emphasis on independent discussion and writing. May be taken for credit by students exempt from American history by AP credit.

HIST 219 Special Topics in History (3)

HIST 224 Modern Military History, 1494-1815 (3) Survey of the military history of Europe through an examination of the economic, financial, strategic, tactical, and technological aspects of the development of military institutions and warfare from the dynastic wars of the Valois and Hapsburgs to the national wars of the French Revolution and Empire.

HIST 225 Modern Military History, 1815-Present (3) The military history of Europe through an examination of the economic, financial, strategic, tactical, and technological aspects of the development of military institutions and warfare from the Congress of Vienna in 1815 to the present.

HIST 234 History of Britain to 1485 (3) British history from Roman times to the 15th century. The Anglo-Saxon, Scandinavian and Norman invasions; the coming of Christianity; Magna Carta, the development of Parliament, legal institutions and the Common Law; the decline of medieval kingship.

HIST 235 History of Britain 1461 to 1714 (3) British history from the War of the Roses to the Hanoverian succession; Yorkist and Tudor society and politics; the Renaissance and Reformation in England, Henry VIII through Elizabeth; 17th century crises and revolutions; intellectual and cultural changes; the beginnings of empire; the achievement of political and intellectual order.

HIST 236 History of Britain 1688 to Present (3) British history from the Glorious Revolution of 1688 to the present. The revolution of 1688; the structure of 18th century society and politics; economic and social change in the industrial revolution; 19th and 20th century political and social reform; imperialism; the impact of the First and Second World Wars on British society.

HIST 237 Russian Civilization (3) An overview of Russian history stressing the main lines of development of the Russian state and the evolution of Russian culture to the present day.

HIST 250 Latin American History I (3) Latin America from pre-Columbian Indian cultures to the beginnings of the wars for independence (ca. 1810), covering cultural, political, social, and economic developments.

HIST 251 Latin American History II (3) The republics of Latin America since independence, with special emphasis upon their social, economic, and cultural development as third world nations.

HIST 255 Afro-American History (3) A survey of the Afro-American in American history, covering the African background, slavery, the role of the Negro in the social, political, economic, cultural and artistic life of the United States. Emphasis will be placed on the enduring themes and the black experience in American society, including contemporary problems in race relations.

HIST 265 Social and Cultural History of Modern America (3) American social history from Civil War to the present. Examination of a network of social interaction accompanying the rise of male-dominated, business-oriented urban culture after the Civil War. Concentration on the major social forces clashing and cooperating to produce the modern United States: "business republicanism", urban workers; intellectuals, rural populists; immigrants (especially Jewish); Black Americans; and struggling women liberators. The swift crosscurrents of a "free-society" still wrestling with inherent contradictions of the democratic experiment begun in the American colonies some 350 years ago

HIST 266 The United States in World Affairs (3) A study of the United States as an emerging world power and the American response to changing status in world affairs. Emphasis on the relationship between internal and external development of the nation

HIST 275 Law and Constitutionalism in American History (3) An exploration of the relationship between law and the social and political order between 1750 and 1950. Discussion of important historical issues--religious liberty, economic development, slavery and the Civil War, the political economy of industrialization, the creation of the modern state--from a legal and constitutional perspective.

HIST 282 History of the Jewish People I (3) Political, economic, social and cultural development within Jewish history from the Biblical period to the late Middle Ages. Special attention to the emergence of Rabbinic Judaism and its subsequent encounter with medieval Christian and Islamic civilizations.

HIST 283 History of the Jewish People II (3) Political, economic, social and cultural development within Jewish history from the end of Middle Ages to the present. Special attention to twentieth century developments including the Nazi holocaust and its aftermath, the Zionist movement and the creation of the State of Israel; rise of the contemporary American Jewish community.

HIST 284 East Asian Civilization I (3) An interdisciplinary survey of the development of East Asian cultures. An historical approach drawing on all facets of East Asian traditional life, to gain an appreciation of the different and complex cultures of the area.

HIST 285 East Asian Civilization II (3) A survey of the historical development of Modern Asia since 1700. Primarily concerned with the efforts of East Asians to preserve their traditional cultures in the face of western expansion in the eighteenth and nineteenth centuries, and their attempts to survive as nations in the twentieth century.

HIST 301 Women and Industrial Development (3) Analysis of women's role in the industrial state. Emphasis on the process of industrialization and its effect on women's lives since the industrial revolution. Comparisons of women in industrial and non-industrial settings.

HIST 305 The Eastern Orthodox Church: Its Cultural History (3) A study of the development of the Christian church in the Near East and Eastern Europe from the conversion of Constantine to the present. Emphasis on the relations between church and state in various periods and on the influence of Eastern Christianity on the cultures of traditionally Eastern Orthodox nations.

HIST 306 History of Religion in America (3) A history of religion, religious movements, and churches in America from the early colonial period to the present, with special attention to the relation of church and society.

HIST 307 The Holocaust of European Jewry (3) Not open to students who have completed HIST 206. Formerly HIST 206. Roots of Nazi Jewish policy in the 1930's and during World War II: the process of destruction and the implementation of the "final solution of the Jewish problem" in Europe, and the responses made by the Jews to their concentration and annihilation.

HIST 309 Proseminar in Historical Writing (3) Discussions and research papers designed to acquaint the student with the methods and problems of research and presentation. Students will be encouraged to examine those phases of history which they regard as their specialties.

HIST 312 Crisis and Change in the United States (3) Prerequisite: one course in history. Major historical crises, controversies, and readjustments in the United States.

HIST 313 Crisis and Change in European Society (3) Prerequisite: one course in history. Major historical crises, controversies, and readjustments in European society.

HIST 314 Crisis and Change in the Middle East and Africa (3) Prerequisite: one course in history. Major historical crises, controversies, and readjustments in the Middle East and Africa.

HIST 315 Crisis and Change in East Asia (3) Prerequisite: one course in history. Major historical crises, controversies, and readjustments in East Asia.

HIST 316 Crisis and Change in Latin America (3) Prerequisite: one course in history. Major historical crisis, controversies, and readjustments in Latin America.

HIST 319 Special Topics in History (3) Repeatable to 6 credits if content differs.

HIST 324 Classical Greece (3) The ancient Greeks from Homer to Socrates, 800-400 B.C. Society and religion of the city-state, the art and literature of Perclean Athens, the Peloponnesian war, and the intellectual circle of Socrates.

HIST 325 Alexander the Great and the Hellenistic Age (3) History of the Greeks 400-30 B.C.: Alexander and the changes he wrought in the Mediterranean world; the rise of monarchies and leagues; new directions in religion, art, literature, and science; and Hellenization of the Near East, including the Jews.

HIST 326 The Roman Republic (3) Ancient Rome 753-44 B.C., from its founding to the assassination of Julius Caesar. Rome's conquest of the Mediterranean world, the social and political forces which brought it about, and the consequent transformation and decline of the republic.

HIST 327 The Roman Empire (3) Roman history from Augustus to Heraclius, 44 B.C.-A.D. 641: The Imperial court and government; the diversity of culture in provinces and cities and the progress of Romanization; Roman religion and its transformation in late antiquity; the Roman army and defense of the frontiers.

HIST 330 Medieval Civilization I (3) Europe from the fall of Rome to the death of Charlemagne. The economic, social and intellectual movements which shaped the civilization of the Latin West, including the rise of Christianity and the church, the creation of a feudal nobility, and the foundation of European states. Developments in art and literature. Readings from sources when available in translation.

HIST 331 Medieval Civilization II (3) Medieval civilization in the 12th and 13th centuries: the Renaissance of the 12th century, the rise of universities, Gothic architecture, the European state system, medieval parliaments and scholastic learning and culture. Emphasis on cultural and political developments of the high Middle Ages with study of the principal sources of medieval thought and learning, art and architecture and political theory. Recommended as a sequel to HIST 411.

HIST 332 Europe During the Renaissance and Reformation I (3) Continental Europe from 1450 to 1650: development and spread of Renaissance culture; growth in the powers of central government; economic expansion and beginnings of overseas colonization; division of Western Christendom into two rival religious camps. Particular emphasis on the Protestant and Catholic reformations and their consequences for Europe's political, social, and cultural development. Renaissance and reformation, 1450-1555. The age of religious wars, 1555-1650.

HIST 333 Europe During the Renaissance and Reformation II (3) Continuation of HIST 332.

HIST 334 The Age of Absolutism, 1600-1715 (3) Europe in the age of Louis XIV, with emphasis upon social, religious, and cultural developments.

HIST 335 Society, Ideas and Culture in the Old Regime, 1715-1789 (3) Europe during the French revolution and Napoleonic period. Intellectual, social, and cultural movements in revolutionary Europe.

HIST 336 Europe in the 19th Century, 1815-1919 (3) The political, economic, social, and cultural development of Europe from the Congress of Vienna to the First World War.

HIST 337 Europe in the World Setting of the 20th Century (3) Political, economic and cultural developments in 20th century Europe with special emphasis on the factors involved in the two world wars and their global impacts and significance.

HIST 340 Eastern Europe under Communism (3) The evolution of communist regimes and socialist societies in Poland, Czechoslovakia, Hungary, East Germany, Romania and Bulgaria with separate treatment of Yugoslavia. Emphasis on pre-1945 continuity and post-1945 change.

HIST 341 History of Anti-Semitism (3) The historical development of anti-Semitism in its European context. Anti-Semitism both as a set of ideas and as a political movement from the ancient era to the present, with emphasis on the modern era.

HIST 342 Fascism: Theory and Practice (3) The origins and history of fascism in Europe, 1918-1945. Emphasis divided between the industrialized (or industrializing) nations and the largely agrarian countries of Europe. The rise of fascism in other parts of the world.

HIST 344 The Russian Revolutions of 1917 (3) A close examination of the historical background, the doctrines, the immediate causes, the events, and the results of the February and October revolutions.

HIST 345 Popular Culture in Europe, 1300-1800 (3) Recommended: survey course in European history. Study of material conditions and mental attitudes of European populace from 1300-1800. Course introduces new research methods of social history, identifying major differences between oral and literate cultures, examining the psychological and mental perspectives of peasant communities. Examination of daily life of the populace, considering their diet and health, criminal activities, folklore and religious practices.

HIST 346 Social and Cultural History of Europe (3) An exploration of social structure, life styles, rituals, symbols, and myths of the peoples of Europe.

HIST 347 History of Crime and Punishment (3) Emphasis on the historical development of law enforcement agencies, criminal jurisdictions and trial procedure, 1500-1800. Nature of principal felonies and major trends in crime; penal theory and practice in historical perspective.

HIST 351 Social History of Washington, D.C. (3) Development of the "resident city" of Washington: neighborhoods, schools, places of worship, economic establishments, and local population groups.

HIST 360 American Colonial History (3) Colonial America from Jamestown to 1763. The establishment of the various colonies with emphasis on the reasons for the instability of colonial society to 1689; the emergence of stable societies after 1689; the development of colonial regionalism, political institutions, social divisions, education, urban and frontier problems in the eighteenth century.

HIST 361 The American Revolution (3) The background and course of the American revolution through the formation of the Constitution. Emphasis on the impact of the political movement and war years on the character of American society.

HIST 362 The Formative Period in America, 1789-1824 (3) The evolution of the federal government, the origins of political parties, problems of foreign relations in an era of international conflict, beginnings of the industrial revolution in America, and the birth of sectionalism.

HIST 363 The Middle Period of American History, 1824-1860 (3) An examination of the political history of the United States from Jackson to Lincoln with particular emphasis on the factors producing Jacksonian Democracy, Manifest Destiny, the Whig Party, the anti-slavery movement, the Republican Party, and Secession.

HIST 364 Reconstruction and the New Nation (3) Sectional and class conflicts and their impact on American life and institutions from the Civil War through the gilded age; social, economic and political reconstruction of the Union; industrialization, urbanization and technological changes.

HIST 365 The Progressive Period: the United States, 1896-1919 (3) How the McKinley, Roosevelt, Taft, and Wilson administrations dealt with the trust, money, tariff, and black issues. World War I is treated briefly.

HIST 366 Between the Wars: the United States, 1919-1945 (3) The American way of life in the 1920's and 1930's, the Great Depression, New Deal, and a brief consideration of World War II.

HIST 367 The United States Since World War II (3) American history from the inauguration of Harry S. Truman to the present with emphasis upon politics and foreign relations, but with consideration of special topics such as radicalism, conservation, and labor.

HIST 374 Modern Jewish History I: the Road to Emancipation, 1650-1870 (3) Social, political, economic, and cultural change in the Jewish world since 1650. Emphasis on emancipation, assimilation, and new forms of Jewish identity in Western and Eastern European Jewry from the 17th to the 20th centuries.

HIST 375 Modern Jewish History II: World Jewry Since 1870 (3) Continuation of HIST 374.

HIST 376 History of Zionism and the State of Israel (3) Ideological and political factors leading to the establishment of a secular Jewish state in 1948; Zionist thought of Herzl, Ahad Ha-am, the socialist and religious

Zionists, and the revisionists; diplomatic activities; Arab-Israel conflict; post-1948 Israeli society.

HIST 380 American Relations With China and Japan, 1740-1970 (3) American political, economic, and cultural relations with China and Japan from the American colonial era to the present. Diplomacy and power politics; Christian missions; immigration and exclusion; overseas education; art and literature; trade, investment, technology.

HIST 390 Middle East I (3) A survey of the political, cultural and institutional history covering the period up to the tenth century.

HIST 391 Middle East II (3) A survey of the political, cultural and institutional history covering the period up from the tenth century to the beginning of the nineteenth century.

HIST 392 History of the Contemporary Middle East (3) The rise of sovereign nation-states; modernization, westernization and secularization in a traditional society; shifting political and economic power groupings within a regional and global context.

HIST 395 Honors Colloquium I (3) Enrollment limited to students admitted by the departmental honors committee. Discussion of reading and written work in weekly seminar meetings.

HIST 396 Honors Colloquium II (3) Continuation of HIST 395.

HIST 398 Honors Thesis (3)

HIST 401 The Scientific Revolution: From Copernicus to Newton (3) Major events in the history of physical science during the 16th and 17th centuries and their relation to philosophy, religion and society in Western Europe. The attack on ancient and medieval scientific theories; the transition from geocentric to heliocentric astronomy; discoveries of Kepler, Galileo and Newton; and the establishment of the "mechanical philosophy" that dominated early modern science.

HIST 402 The Development of Modern Physical Science: From Newton to Einstein (3) Prerequisites: MATH 110; and PHYS 112 or PHYS 117 or equivalent. The history of physics in the 18th and 19th centuries, including some of its connections with mathematics, technology, chemistry and planetary science. Emphasis on internal technical developments in physical theory, with some discussion of experimental, philosophical and sociological aspects. This is the second part of a three-semester sequence (HIST 401, HIST 402, PHYS 490); each part may be taken independently of the others.

HIST 403 20th Century Revolutions in the Physical Sciences (3) Prerequisites: MATH 110 or equivalent and six credits of college-level physics. Major changes in knowledge of the physical world, including quantum theory/atomic structure, relativity/cosmology, and continental drift/plate tectonics; theories about the nature of scientific revolutions.

HIST 404 History of Modern Biology (3) The internal development of biology in the nineteenth and twentieth centuries, including evolution, cell theory, heredity and development, spontaneous generation, and mechanism - vitalism controversies. The philosophical aspects of the development of scientific knowledge and the interaction of biology with chemistry and physics.

HIST 405 The North Atlantic World in the Early Modern Era (3) Relations between Europe and the North American colonies in the 17th and 18th centuries, stressing the development of a common North Atlantic culture and the disintegration of this culture as a result of nationalistic pressures.

HIST 406 History of Technology (3) Not open to students who have completed HIST 407 prior to Fall Semester, 1989. The changing character of technology in modern history, beginning with the Middle Ages. Concentrates on the Industrial Revolution and its aftermath, the nature of technological knowledge and the sources of technological change.

HIST 407 Technology and Social Change in History (3) Students with HIST 407 prior to Fall Semester 1989 must have permission of department to enroll in this course. Social consequences of technological innovations and the ways in which societies people have coped with new technologies.

HIST 409 Topics in the History of Science and Technology (3) Repeatable to 6 credits if content differs. Selected topics in the history of science and technology.

HIST 410 Introduction to Archives I (3) Prerequisite: permission of department. Corequisite: HIST 411. History of the basic intellectual problems relating to archives and manuscript repositories; emphasis on problems of selection, access, preservation, inventorying and editing as well as the variety of institutions housing documents.

HIST 411 Introduction to Archives II (3) Prerequisite: permission of department. Corequisite: HIST 410. Practical experience through placement in cooperating archives or manuscript repositories in the Baltimore/Annapolis/Washington, D.C. areas. Assignments to specific projects based on intellectual interest of students.

HIST 414 History of European Ideas I (3) Review of the basic western intellectual traditions as a heritage from the ancient world. Selected important currents of thought from the scientific revolution of the 16th and 17th centuries down to the end of the 18th century.

HIST 415 History of European Ideas II (3) A continuation of HIST 414 emphasizing 19th and 20th century thought.

HIST 418 Jews and Judaism: Selected Historical Topics (3) Repeatable to 6 credits if content differs.

HIST 419 Special Topics in History (3) Repeatable to 9 credits if content differs.

HIST 422 Byzantine Empire I (3) The Eastern Roman Empire from Constantine the Great to the crisis of the ninth century. The development of the late Roman state into the Medieval Christian Byzantine empire and the evolution of a distinctive Byzantine culture.

HIST 423 Byzantine Empire II (3) The Byzantine empire from the Macedonian renaissance to the conquest of Constantinople by the Turks in 1453: the Byzantine empire at its height, the crusades, Byzantium as a minor power, and its contributions to the Renaissance and the cultures of Russia and the Balkans.

HIST 424 History of Russia to 1801 (3)

HIST 425 History of Russia From 1801 - 1917 (3) A continuation of HIST 424.

HIST 426 Age of Industry: Britain 1760 to 1914 (3) An economic, social, political and cultural analysis of Britain in the age of its industrial supremacy. The nature of the first industrial revolution; the emergence of modern social classes; the cultural impact of industrialization; politics and society in the early and mid-nineteenth century; Victorianism and its critics; imperialism and politics; high and low culture; the rise of labor; social and political tensions 1910-1914.

HIST 427 Age of Decline: Britain 1914 to Present (3) British society since the First World War. The social, cultural, economic and political impact of the First World War; labor and politics in the 1920s and 1930s; the inter-war depression, appeasement and foreign policy; the social impact of the Second World War; the welfare state and nationalization of industry; the dissolution of Empire; the emergence of a consumer society; social criticism in 1950s; the economic and political problems of the 1960s and 1970s.

HIST 430 Tudor England (3) An examination of the political, religious and social forces in English life, 1485-1603, with special emphasis on Tudor government, the English reformation and the Elizabethan era.

HIST 431 Stuart England (3) An examination of the political, religious and social forces in English life, 1603-1714, with special emphasis on Puritanism and the English revolutions.

HIST 433 Changing Perceptions of Gender Identities in the U.S., 1880-1935 (3) Exploring changing perceptions of gender in the U.S., 1880-1935, and the impact of those changes on the day-to-day lives of men and women.

HIST 435 Constitutional and Legal History of Britain (3) Not open to students who have completed HIST 434 or HIST 435. Constitutional and legal developments in England from the Anglo-Saxon settlement to the present day. The rise and decline of monarchical government, the development of parliament, and the emergence of systematized, democratic government. The origins of the common law and legal profession, the development of a centralized judicial system, and the emergence of modern trial procedures. Survey knowledge of English history desirable.

HIST 436 French Revolution and Napoleon (3) The causes and course of the French Revolution with emphasis on the struggle among elites, popular intervention, the spread of counterrevolution, the Terror as repression and popular government, the near collapse of the Republic, and the establishment and defeat of dictatorship.

HIST 437 Modern France from Napoleon to DeGaulle (3) The changing political and cultural values of French society in response to recurrent crises throughout the 19th and 20th centuries. Students should have had some previous survey of either western civilization or European history.

HIST 440 Germany in the Nineteenth Century, 1815-1914 (3) The development of modern Germany.

HIST 441 Germany in the Twentieth Century, 1914-1945 (3) Germany's aims and policies during World War I, its condition and policies in the inter-war period, the rise of national socialism, and Germany's part in World War II.

HIST 442 The Soviet Union (3) A history of Soviet Russia and the Soviet Union from 1917 to the present. Stress on the relationship between Marxist theory and practice, and the development of peculiarly socialist institutions and practices.

HIST 443 Modern Balkan History (3) A political, socio-economic, and cultural history of Yugoslavia, Bulgaria, Romania, Greece, and Albania from the breakdown of Ottoman domination to the present. Emphasis is on movements for national liberation during the nineteenth century and on approaches to modernization in the twentieth century.

HIST 444 Nineteenth Century European Diplomatic History (3) The development and execution of European diplomacy from the Congress of Vienna to the outbreak of World War I, concentrating on Central and Western Europe.

HIST 445 Twentieth Century European Diplomatic History (3) The development and execution of European diplomacy from the outbreak of World War I to the conclusion of World War II, concentrating on Central and Western Europe.

HIST 447 European Economic History Since 1750 (3) The mainsprings of the Industrial Revolution first in 18th century England and then across the rest of Europe during the 19th and 20th centuries. Emphasis on the English, French, German, Austro-Hunganan and Russian experiences with private capitalism and public policy, including fascism and communism. Social consequences of industrial development such as urbanization and the rise of labor movements.

HIST 450 Economic History of the United States to 1865 (3) The development of the American economy from Columbus through the Civil War.

HIST 451 Economic History of the United States After 1865 (3) The development of the American economy from the Civil War to the present.

HIST 452 Diplomatic History of the United States to 1914 (3) American foreign relations from the American Revolution to the beginning of World War I. International developments and domestic influences that contribute to American expansion in world affairs. Analyses of significant individuals active in American diplomacy and foreign policy.

HIST 453 Diplomatic History of the United States from 1914 (3) American foreign relations in the twentieth century. World War I, the Great Depression, World War II, the Cold War, the Korean War, and Vietnam. A continuation of HIST 452.

HIST 454 Constitutional History of the United States: From Colonial Origins to 1860 (3) The interaction of government, law, and politics in the constitutional system. The nature and purpose of constitutions and constitutionalism; the relationship between the constitution and social forces and influences, the way in which constitutional principles, rules, ideas, and institutions

affect events and are in turn affected by events. The origins of American politics and constitutionalism through the constitutional convention of 1787. Major constitutional problems such as the origins of judicial review, democratization of government, slavery in the territories and political system as a whole.

HIST 455 Constitutional History of the United States: Since 1860 (3) American public law and government, with emphasis on the interaction of government, law, and politics. Emphasis on the political-constitutional system as a whole, rather than simply the development of constitutional law by the Supreme Court. Major crises in American government and politics such as Civil War, reconstruction, the 1890's, the New Deal era, the civil disorders of the 1960's.

HIST 456 History of Ideas in America to 1865 (3) The ideas, conflicts, myths, and realities that shaped American character and society from the first settlements to the Civil War.

HIST 457 History of Ideas in America Since 1865 (3) A continuation of HIST 456.

HIST 458 Selected Topics in Women's History (3) Repeatable to 6 credits if content differs. Selected topics on women in American society including such areas as women and the law, women and politics, the "feminine mystique" and the "new feminism."

HIST 459 Society in America: Historical Topics (3) Repeatable to 6 credits if content differs. A consideration of selected aspects of American society from colonial times to the present. Special emphasis on regionalism, immigration, nativism, minorities, urbanization, and social responses to technological changes.

HIST 460 History of Labor in the United States (3) The American working class in terms of its composition; its myths and utopias; its social conditions; and its impact on American institutions.

HIST 461 Blacks in American Life: 1865 to Present (3) The role of the Black in America since slavery, with emphasis on twentieth century developments: the migration from farm to city; the growth of the civil rights movement; the race question as a national problem.

HIST 462 The Civil War (3) A detailed study of historical interpretations; the forces, situations and events that caused the war; the war and its impact.

HIST 463 History of the Old South (3) The golden age of the Chesapeake, the institution of slavery, the frontier south, the antebellum plantation society, the development of regional identity and the experiment in independence.

HIST 467 History of Maryland (3) Political, social and economic history of Maryland from the seventeenth century to the present.

HIST 471 History of Brazil (3) The history of Brazil with emphasis on the national period.

HIST 472 History of the Argentine Republic (3) Concentration upon the recent history of Argentina with emphasis upon the social and economic development of a third world nation.

HIST 473 History of the Spanish Caribbean (3)HIST 474 History of Mexico and Central America I (3) History of Mexico and Central America, beginning with the Pre-Spanish Indian cultures and continuing through European contact, conquest, and colonial dominance, down to the beginning of the Mexican War for Independence in 1810.

HIST 475 History of Mexico and Central America II (3) A continuation of HIST 474 with emphasis on the political development of the Mexican nation.

HIST 480 History of Traditional China (3) China from earliest times to 1644 A.D. Emphasis on the development of traditional Chinese culture, society, and government.

HIST 481 A History of Modern China (3) Modern China from 1644 to the People's Republic of China. Emphasis on the coming of the west to China and the various stages of the Chinese reaction.

HIST 482 History of Japan to 1800 (3) Traditional Japanese civilization from the age of Shinto mythology and introduction of continental learning down to the rule of military families, the transition to a money economy, and the creation of a townsmen's culture. A survey of political, economic, religious, and cultural history.

HIST 483 History of Japan Since 1800 (3) Japan's renewed contact with the western world and emergence as a modern state, industrial society, and world power, 1800-1931; and Japan's road to war, occupation, and recovery, 1931 to the present.

HIST 485 History of Chinese Communism (3) An analysis of the various factors in modern Chinese history that led to the victory of the Chinese communist party in 1949 and of the subsequent course of events of the People's Republic of China, from ca. 1919 to the present.

HIST 487 History of Soviet Foreign Relations, 1917 to Present (3) A history of Soviet foreign relations both conventional diplomacy and the spread of international proletarianism from the October Revolution to the present.

HIST 491 History of the Ottoman Empire (3) Survey of the Ottoman Turkish Empire from 1300 A.D. to its collapse during World War I. Emphasis on the empire's social and political institutions and its expansion into Europe, the Arab East and North Africa.

HIST 496 Africa Since Independence (3) Analysis of socio-political and econo-political changes in Africa since approximately 1960; development of class structures, the role of the military, personal rule and the patrimonial state; decline of party politics and participatory politics. Discussion of changes in economic policies, policies with respect to rural communities, and their relationship to the state and decision-making.

HIST 497 Islam in Africa (3) The introduction of Muslims and Islam into Africa from approximately the eighth to nineteenth century. Impact of Islam on a regional-cultural basis, as well as Islam in state development. A discussion of political theory in Islamic Africa, and the impact of Islam on social structures, e.g., domestic African slavery. Role of Islam in resistance movements against imperialism and colonization, as well as the place of Islam in the independence movements of the 1950's and 1960's.

HIST 499 Independent Study (1-3) Prerequisite: permission of department. Repeatable to 6 credits.

HLHP — Health and Human Performance

HLHP 488 Children's Health and Development Clinic (1-4) Prerequisite: permission of department. Repeatable to 4 credits. Formerly PERH 488. An opportunity to acquire training and experience in a therapeutically oriented physical education-recreation program for children referred by various education, special education, medical or psychiatric groups.

HLTH — Health

HLTH 105 Science and Theory of Health (2) The scientific and philosophical bases for various theories of health, including health, wellness, individual control and limitations of health status, and holistic health.

HLTH 106 Drug Use and Abuse (3) An interdisciplinary analysis of contemporary drug issues and problems. The course will examine physiological, psychological, social, philosophical, historical, legal and health aspects of drug use and abuse. Special attention will be focused on those general motivations for drug use that attend life on the college campus.

HLTH 140 Personal and Community Health (3) Meaning and significance of physical, mental and social health as related to the individual and to society; important phases of national health problems; constructive methods of promoting health of the individual and the community.

HLTH 150 First Aid and Emergency Medical Services (2) Lecture, demonstration and training in emergency care, including cardiopulmonary resuscitation, hemorrhage control, shock, poisons and bone injury treatment and childbirth. American Red Cross and Heart Association of Maryland Certification awarded.

HLTH 230 Introduction to Health Behavior (3) Psychological, social psychological, and sociological approaches to the following health areas: development of health attitudes and behavior, patient-provider interaction and the organization of health care.

HLTH 270 Safety Education (3) Safety in the home, school and community. Safety education programs in the public schools.

HLTH 285 Controlling Stress and Tension (3) Health problems related to stress and tension. Analysis of causative psycho-social stressors and intervening physiological mechanisms. Emphasis on prevention and control of stress through techniques such as biofeedback, meditation and neuromuscular relaxation.

HLTH 289 Topical Investigations (1-3) Repeatable to 6 credits if content differs. Independent study by an individual student or an experimental course in special areas of knowledge not covered by regularly scheduled courses.

HLTH 340 Curriculum, Instruction and Observation (3) Prerequisite: HLTH 140; and HLTH 420. A course designed to provide directed observation and discussion, coordinating these experiences with those from previous methods courses in the development of curricula for health and physical education. The course is planned to prepare for student teaching which follows in the same semester. The observations will be made of health programs in junior and senior high schools.

HLTH 371 Communicating Safety and Health (3) The communication and evaluation of safety and health information. Emphasis on various types of communications and recipient factors which contribute to their success or failure.

HLTH 377 Human Sexuality (3) Formerly HLTH 477. The biological and developmental aspects of human sexuality; the psychological and emotional aspects of sexual behavior; sexual identity; the historical, cultural, social, linguistic, legal and moral forces affecting sexual issues; the importance of communication, disclosure and intimacy in interpersonal relationships; and research trends in the area of human sexuality.

HLTH 380 Peer Education: Alcohol and Other Drugs (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH 106; and permission of department. Peer training dealing with drug information and abuse to facilitate workshops in various outreach locations (dorms, Greek system, classrooms).

HLTH 381 Peer Education: Stress Management (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH 285; and permission of department. Peer training in different forms of stress management to facilitate workshops in various outreach locations (dorms, Greek system, classes).

HLTH 382 Peer Education: Sexuality and Communication (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH 377; and permission of department. Peer training in communication and issues of sexuality to facilitate workshops in various outreach locations (dorms, Greek system, classes).

HLTH 383 Peer Education: Reproductive Health (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: HLTH 377; and permission of department. Peer training in methods of birth control, sexually transmitted disease and AIDS education to facilitate workshops in the student Health Center and various outreach locations (dorms, Greek system, classes).

HLTH 389 Topical Investigations (1-3) Repeatable to 6 credits if content differs. Independent study by an individual student or an experimental course in special areas of knowledge not covered by regularly scheduled courses.

HLTH 390 Organization and Administration of School Health Programs (3) Prerequisite: HLTH 105. The three major aspects of the school health program are considered. Problems connected with health services, health instruction, and the health aspects of the school environment are discussed. The responsibilities of school personnel are delineated with emphasis on the role of the administrator.

HLTH 420 Methods and Materials in Health Education (3) Prerequisites: HLTH 105 or HLTH 140. The purpose of this course is to present the interrelationships of curriculum planning, methodology and the selection and use of teaching aids and materials. Special problems associated with health teaching are discussed. Students become familiar with a variety of resources as well as planning for and presenting demonstration lessons.

HLTH 430 Health Education in the Workplace (3) A survey of the role of health education in work settings. Examination of occupational stress, the health effects of shift work, women's health in the workplace, health education approaches to informing workers and management, and health promotion programs in the workplace.

HLTH 437 Consumer Behavior (3) Prerequisites: PSYC 100; and SOCY 100. Also offered as CNEC 437. Credit will be granted for only one of the following: CNEC 437 or HLTH 437. An application of the behavioral sciences to a study of consumer behavior. Current theories, models and empirical research findings are explored.

HLTH 440 Health Education and Behavioral Approaches to Nutrition (3) Prerequisite: NUTR 100 or equivalent. Health education and health behavior methods, techniques and approaches applied to nutrition behavior, ways of changing nutrition and dietary behavior, relationship between nutrition and health, nutrition education, psychology of eating, and behavioral and cultural factors in diet.

HLTH 450 Health of Children and Youth (3) A study of the health of 5 to 18 year olds. Physical, mental, social, and emotional health. Psychosexual development, diet, exercise, recreation, and the roles of parents and teachers.

HLTH 455 Physical Fitness of the Individual (3) Study of major physical fitness problems confronting the adult in modern society. Consideration given to the scientific appraisal, development and maintenance of fitness at all age levels. Obesity, weight reduction, chronic fatigue, posture, and special exercise programs are explored. Open to persons outside the physical education and health fields.

HLTH 456 Health of the Aging and Aged (3) Psychological, physiological and socio-economic aspects of aging; nutrition; sexuality; death, dying, and bereavement; self-actualization and creativity; health needs and crises of the aged.

HLTH 471 Women's Health (3) The women's health movement from the perspective of consumerism and feminism. The physician-patient relationship in the gynecological and other medical settings. The gynecological exam, gynecological problems, contraception, abortion, pregnancy, breast and cervical cancer and surgical procedures. Psychological aspects of gynecological concerns.

HLTH 476 Death Education (3) Examination of the genesis and development of present day death attitudes and behavior by use of a multidisciplinary life cycle approach.

HLTH 487 Adult Health and Developmental Program (3) Training and experience in a clinically oriented development program for the aged.

HLTH 489 Field Laboratory Projects and Workshop (1-6) Note: the maximum total number of credits that may be earned toward any degree in kinesiology, recreation, or health education under KNES, RECR, or HLTH 489 is six. A course designed to meet the needs of persons in the field with respect to workshop and research projects in special areas of knowledge not covered by regularly structured courses.

HLTH 490 Theories of Children's Love and Peace Behavior (3) The development of love and peace behaviors as health correlates in infra human and human species from infancy through childhood with special emphasis upon the role of physical education, recreation, and health. The examination of existing models in the areas of family, school, and clinical settings.

HLTH 498 Special Topics in Health (3) Prerequisite: permission of department. Repeatable to 3 credits if content differs. Topics of special interest in areas not covered by regularly scheduled courses.

HONR — Honors

HONR 100 Honors Colloquium (1) Prerequisite: permission of University Honors Program. Attendance at various additional activities and events is required. Reading and discussion on the personal and social value of higher education; development of a coherent general education program; exploration of the educational and cultural resources of the campus and metropolitan area; participation in a community service project; and other activities designed to broaden students' conception of what it means to be an educated person.

HONR 118 Honors Colloquium: Cultural and Historical (3) A colloquium on a variety of topics, each of which will include the study of a culture or cultures from a comparative or historical perspective. The course may be repeated for credit, with the permission of the Director of the University Honors Program, if the content of the course is substantially different. Open to University honors freshmen or sophomores and to other students by permission of the Director of University Honors.

HONR 128 Honors Colloquium: Natural Sciences and Mathematics (1-4) A colloquium on a variety of topics in natural sciences or mathematics. The course may be repeated for credit, with the permission of the Director of the University Honors Program, if the content of the course is substantially different. Class discussion and active student participation will be stressed. Open to University honors freshmen or sophomores and to other students by permission of the Director of University Honors.

HONR 138 Honors Colloquium: Literature and the Arts (3) A colloquium on a variety of topics each of which deals with the aesthetic from an analytical and evaluative viewpoint. The course may be repeated for credit, with the permission of the Director of the University Honors Program, if the content of the course is substantially different. Class discussion and active student participation will be stressed. Open to University Honors freshmen or sophomores and to other students by permission of the Director of University Honors.

HONR 148 Honors Colloquium: Social and Behavioral Sciences (3) A colloquium on a variety of topics in the social and behavioral sciences. The course may be repeated for credit, with the permission of the Director of the University Honors Program, if the content of the course is substantially different. Class discussion and active student participation will be stressed. Open to University Honors freshmen or sophomores and to other students by permission of the Director of University Honors.

HONR 200 Sophomore Honors Colloquium (1) Prerequisite: permission of University Honors Program. For University Honors Program sophomores only. Sophomore standing. Introduction to scholarly research through readings and meetings with faculty from various disciplines; exploration of research methods and some of the problems encountered in research; discussion of the creative process; attendance at scholarly lectures; and other activities designed to prepare students to enter college or departmental honors programs.

HONR 318 Honors Seminar: Cultural and Historical (1-3) A series of seminars, often interdisciplinary in character, and sometimes team taught. The subjects will vary from semester to semester. The content will always be such that it includes the study of a culture or cultures from a comparative or historical perspective. The seminar may be repeated for credit, with the permission of the Director of the University Honors Program, if the content of the course is substantially different. Open to University and departmental honors students and to others with the permission of the instructor and the Director of University Honors.

HONR 328 Honors Seminar: Natural Sciences and Mathematics (1-3) A series of seminars in the natural sciences and mathematics, often interdisciplinary in character and sometimes team taught. The subjects will vary from semester to semester. The seminar may be repeated for credit, with the permission of the Director of the University Honors Program, if the content of the course is substantially different. Open to University and departmental honors students and to others with the permission of the instructor and the Director of University Honors.

HONR 338 Honors Seminar: Literature and the Arts (1-3) A series of seminars in literature and the arts, often interdisciplinary and sometimes team taught. The subjects will vary from semester to semester. The content will always be such that it includes a focus on the aesthetic from an analytic and evaluative viewpoint. The seminar may be repeated for credit, with the permission of the Director of the University Honors Program, if the content of the course is substantially different. Open to University and departmental honors students and to others with the permission of the instructor and the Director of University Honors.

HONR 348 Honors Seminar: Social and Behavioral Sciences (1-3) A series of seminars in the social and behavioral sciences, often interdisciplinary and sometimes team taught. The subjects will vary from semester to semester. The seminar may be repeated for credit, with the permission of the Director of the University Honors Program, if the content of the course is substantially different. Open to University and departmental honors students and to others with the permission of the instructor and the Director of University Honors.

HONR 368 Advanced Honors Seminar: Development of Knowledge (1-3) A series of seminars, often interdisciplinary in character and sometimes team-taught. The creation, discovery, exploration, testing and evaluation of knowledge in one or more disciplines. The seminar may be repeated for credit, with the permission of the Director of the University Honors Program, if the content of the course is substantially different. Open to University and departmental honors students and to others with permission of the Director of University Honors.

HONR 378 Advanced Honors Seminar: Analysis of Social and Ethical Problems (1-3) A series of seminars, often interdisciplinary in character and sometimes team-taught. The application of knowledge from one or more disciplines to the study of important human problems. The seminar may be repeated for credit, with the permission of the Director of the University Honors Program, if the content of the course is substantially different. Open to University honors students and to others with permission of the Director of University Honors.

HONR 378R Advanced Honors Seminar: Analysis of Social and Ethical Problems: Sociology of Revolutions (3)

HONR 379 Honors Independent Study (1-6) Honors independent study involves reading or research, directed by individual faculty, especially in areas outside of student's major. HONR 379 or 360 but not both, may be used once to fulfill the general honors seminar requirement. Graded pass-fail. May be repeated to a maximum of twelve hours. Open only to University honors students.

HONR 388 Honors Thesis or Project (3-6) Repeatable to 6 credits if content differs. Formerly HONR 370.

HORT — Horticulture

HORT 100 Introduction to Horticultura (4) Two hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: BIOL 105. An overview to the art and science of horticulture. Relationships between plant science and plant production, the use of horticultural plants and plant stress as influenced by cultural practices.

HORT 101 Practical Plant Science (4) Two hours of lecture, one hour of laboratory, and one hour of discussion/recitation per week. Emphasizes the growing of plants in the classroom and their importance to civilization.

HORT 160 Introduction to Landscape Architecture (3) Theory and general principles of landscape architecture with their application to public and private areas.

HORT 161 Design Fundamentals (3) Six hours of laboratory per week. Prerequisite: permission of department. For HORT majors only. Fundamentals of basic design using different media; focusing on design problems associated with landscape architecture.

HORT 200 Land Surveying (1) Principles of land surveying including measurements of distances; elevation, and angles, instrumentation and mapping

HORT 201 Environmental Factors and Horticultural Crop Production (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: BIOL 105 and HORT 100. The first of a two semester sequence. The influence and interaction of light, mineral nutrition, water, temperature and gas exchange on growth, physiological responses, productivity and quality of horticultural crops.

HORT 202 Management of Horticultural Crops (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: HORT 100 and BIOL 105. A study of the principles and practices used in the production of horticultural crops. Management of soils and soilless media, vegetative and reproductive growth and development, pests, harvest, post-harvest environment and marketing will be presented for model commodities.

HORT 260 Graphic Communications (2) Two two-hour studio periods per week. Prerequisites: HORT 160 and EDIT 160. Graphic communication for landscape design presentation, supplemented by basic problems in landscape design.

HORT 271 Plant Propagation (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: BIOL 105 and HORT 100. A study of the principles and practices in the propagation of plants.

HORT 361 Principles of Landscape Design (3) One lecture and two studio periods per week. Prerequisite: HORT 260; and DESN 101. A consideration of design criteria and procedure as applied to public and private landscape.

HORT 370 History of Landscape Architecture (2) Prerequisite: HORT 260. Introduction to historical research methods with individual student investigations of a particular period, place, or person that affected the profession of landscape architecture.

HORT 398 Seminar (1) Oral presentation of the results of investigational work by reviewing recent scientific literature in the various phases of horticulture.

HORT 399 Special Problems in Horticulture (1-2) Prerequisites: 12 credits in HORT and permission of department. For HORT and BOTN majors only. Repeatable to 4 credits if content differs. Research projects in horticulture including field, greenhouse, laboratory, studio or library research under the direction of a faculty member.

HORT 432 Greenhouse Crop Production (3) Prerequisite: HORT 201; and HORT 202. Pre- or corequisite: BOTN 441. The commercial production and marketing of ornamental plant crops under greenhouse, plastic houses and out-of-door conditions.

HORT 433 Technology of Fruit and Vegetable Production (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: HORT 201; and HORT 202; and HORT 271; and AGRO 411. Corequisite: HORT 271 and BOTN 441. Recommended: AGRO 302. 60 semester hours. Junior standing. Credit will be granted for only one of the following: HORT 411, HORT 422, or HORT 433. A critical analysis of research work and application of the principles of plant physiology, chemistry and botany to practical problems in the commercial production of fruit and vegetable crops.

HORT 452 Principles of Landscape Establishment and Maintenance (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: HORT 202 or permission of department. Recommended: HORT 201. For HORT majors only. Establishment and maintenance of landscape plants, stressing the physiological determinants of recommended practices.

HORT 453 Woody Plant Materials I (3) Prerequisite: BOTN 212. A field and laboratory study of trees, shrubs, and vines used in ornamental plantings. Major emphasis is placed on native deciduous plant materials.

HORT 454 Woody Plant Materials II (3) Prerequisite: BOTN 212. A field and laboratory study of trees, shrubs, and vines used in ornamental plantings. Major emphasis is placed on introduced and evergreen plant materials.

HORT 456 Nursery Crop Production (3) Two lectures a week and four all-day compulsory Saturday laboratories. Pre- or corequisites: HORT 201; and HORT 202; and HORT 271. The methods used for producing ornamental plants and an introduction to the different types of commercial nurseries.

HORT 460 Landscape Design I (3) Nine hours of laboratory per week. Prerequisites: HORT 465 and HORT 462. For BLA majors only. Research projects in landscape architecture that demonstrates an understanding of the consequences and implications of the discipline on society and the land.

HORT 461 Landscape Design II (3) Nine hours of laboratory per week. Prerequisite: HORT 468. For BLA majors only. A senior capstone course and a continuation of HORT 468 culminating in submission of a final design proposal.

HORT 462 Urban Landscape Design (4) Three hour lecture and one two-hour studio per week. Prerequisite: HORT 361 and either HORT 453 or HORT 454. Corequisite: HORT 452. Trends in the field of urban landscape design. Explore the two distinct areas of planting design and urban design and focus on the efforts to integrate them within the spectrum of landscape architectural studies.

HORT 464 Principles of Landscape Construction (3) One lecture and two two-hour studio periods per week. Prerequisite: HORT 361. Landscape development principles and construction practices as applied to grading, drainage, layout, and vehicular and pedestrian circulation.

HORT 465 Landscape Structures and Materials (3) One lecture and two two-hour studio periods per week. Prerequisite: HORT 464 Use and design of structures in the landscape.

HORT 466 Advanced Landscape Design (3) One lecture and two studio periods per week. Prerequisites: HORT 462; and HORT 465; and HORT 452. A synthesis of design, landscape development, construction and planting principles and procedures as applied to the comprehensive design of public and private landscapes.

HORT 467 Professional Practices (3) Prerequisites: (HORT 464 and HORT 465) or permission of department. For HORT, ARCH, ENCE, and URSP majors only. Introduction to and comparative study of the professional concerns of design firms and construction contracting companies. Focus on planning, legal, ethical, marketing, and management considerations of private and public interdisciplinary practices.

HORT 472 Advanced Plant Propagation (2) Prerequisite: HORT 201; and HORT 202; and HORT 271. A study of the anatomy, morphology and physiology of the seed and plant as related to macro and micro forms of propagation. A review of research in propagation.

HORT 474 Physiology of Maturation and Storage of Horticultural Crops (3) Two hours of lecture and two hours of laboratory per week. Pre- or corequisite: BOTN 441. The physiological and biochemical changes occurring during storage of horticultural commodities. Application of scientific principles to handling and storage of fresh produce.

HORT 489 Special Topics in Horticulture (1-3) Credit according to time scheduled and organization of course. A lecture and/or laboratory series organized to study in depth a selected phase of horticulture not covered by existing courses.

HSAD — Housing and Design

HSAD 251 Housing Issues and Prospects (3) Social and economic issues associated with the production, consumption and regulation of housing. Perceptions of the housing unit; factors affecting the cost and financing of housing; and the role of federal and local government in the distribution of the housing resource.

HSAD 343 Interior Design I (3) Two three-hour lecture/discussion/studio periods. Prerequisite: HSAD 342 or DESN 342. For interior design majors only. Development of the design process, include problem definition, performance specifications, program development, schematic alternatives, evaluation, design development, and construction documents. Application of the process to the design of residential spaces with emphasis on concepts of community and privacy.

HSAD 344 Interior Design II (3) One lecture-discussion, two studio periods. Prerequisite: HSAD 343 or DESN 343. For interior design majors only. Continuation of HSAD 343 with emphasis on commercial and contract assignments.

HSAD 440 Interior Design III (4) Prerequisite: HSAD 344. For interior design majors only. Eight hours studio periods. Preparation of complete presentation: work specifications, floor plans, purchase orders, renderings, etc. Portfolio preparation.

HSAD 441 Interior Design IV (4) Prerequisite: HSAD 440. For interior design majors only. Eight hours studio periods. Preparation of complete presentation: work specifications, floor plans, purchase orders, renderings, etc. Portfolio preparation.

HSAD 460 Housing Costs and Financing (3) Prerequisite: MATH 110 and ECON 205 or equivalent. Effects of housing costs and financing on the ability of households to obtain satisfactory housing. Influence of public and private groups on the cost of housing and availability of financing. Basic quantitative techniques of housing cost analysis.

HSAD 488 Selected Topics in Housing and Interior Design (1-6) Offered on demand. May be repeated to a maximum of six hours if content differs.

HSNG — Housing

HSNG 251 Housing Issues and Prospects (3) Social and economic issues associated with the production, consumption, and regulation of housing. Perceptions of the housing unit; factors affecting the cost and financing of housing, and the role of federal and local government in the distribution of the housing resource

HSNG 458 Readings in Housing (3) Prerequisite: SOCY 100 and permission of department. Repeatable to 6 credits. In-depth readings under the guidance of a faculty member on one or more facets of housing, in support of individual interests in urban renewal, public housing, etc.

HSNG 488 Selected Topics in Housing (1-6) Repeatable to 6 credits.

HSNG 499 Individual Study in Housing (3-4) Guidance for the advanced student capable of independent subject matter investigation or creative work. Problem chosen with consent of instructor.

ITAL — Italian

ITAL 101 Elementary Italian I (4) Credit will be granted for only one of the following: ITAL 101 or ITAL 121. Introduction to basic grammar and vocabulary; written and oral work.

ITAL 102 Elementary Italian II (4) Prerequisite: ITAL 101 or permission of department. Continuation of study of basic grammar; written and oral work, with increased emphasis on spoken Italian.

ITAL 121 Accelerated Italian I (3) Credit will be granted for only one of the following: ITAL 101 or ITAL 121. An intensive beginning course in Italian language skills: guided practice in reading, writing, understanding and conversation, to enable the student to move more quickly to advanced courses. Restricted to students already having a good background in at least one other foreign language. With ITAL 122, may be used to satisfy language requirement.

ITAL 122 Accelerated Italian II (3) Prerequisite: ITAL 121 or permission of department. Credit will be granted for only one of the following: ITAL 203 or ITAL 122. Continuation of ITAL 121. Completion of accelerated cycle. May be used to satisfy language requirement.

ITAL 203 Intermediate Italian (4) Prerequisite: ITAL 102 or permission of department. Credit will be granted for only one of the following: ITAL 203 or ITAL 122. Completion of study of basic grammar; extensive reading, discussion, and composition. Completion of this course fulfills the Arts and Humanities language requirement.

ITAL 204 Review Grammar and Composition (3) Prerequisite: ITAL 203 or ITAL 122, or permission of department. An intensive review of major aspects of contemporary grammatical usage; training in comprehension; an introduction to guided composition.

ITAL 211 Intermediate Conversation (3) Prerequisite: ITAL 203 or permission of department. Not open to native speakers. Practice in spoken Italian with emphasis on contemporary Italian culture.

ITAL 251 Introduction to Italian Literature (3) Prerequisite: ITAL 204 or ITAL 211 or permission of department. Reading of selected literary texts; discussion and brief essays in Italian.

ITAL 301 Composition and Style (3) Prerequisite: ITAL 204 or permission of department. Techniques of composition; grammatical analysis; elements of style; free composition.

ITAL 302 Introduction to Translation (3) Prerequisite: ITAL 301 or permission of department. Translation exercises into English and Italian; problems and strategies.

ITAL 311 Italian Conversation: Current Events (3) Prerequisite: ITAL 211 or permission of department. Oral expression; development of idiomatic forms and vocabulary to level of the Italian press. Not open to students with native fluency.

ITAL 351 Italian Literature From Dante to the Renaissance (3) Prerequisite: ITAL 251 or permission of department. Basic survey of history of Italian literature.

ITAL 352 Italian Literature From the Renaissance to the Present (3) Prerequisite: ITAL 251 or permission of department. Basic survey of history of Italian literature.

ITAL 370 Italian Civilization - In Translation (3) Credit will be granted for only one of the following: ITAL 370 or ITAL 470. Political, social, intellectual, literary and artistic forces shaping contemporary Italy, from the late Middle Ages to the present. In English.

ITAL 399 Directed Study in Italian (1-3) Prerequisite: permission of department. Repeatable to 3 credits. Intended for undergraduates who wish to work on an individual basis with a professor of their choice.

ITAL 411 Dante - In Translation (3) Credit will be granted for only one of the following: ITAL 411 or ITAL 412. Dante's thought as expressed in his major writings: The Vita Nuova, De Monarchia and The Divine Comedy. In English.

ITAL 412 Dante - In Italian (3) Credit will be granted for only one of the following: ITAL 411 or ITAL 412. Dante's thought as expressed in his major writings: The Vita Nuova, De Monarchia and The Divine Comedy. In Italian.

ITAL 421 The Italian Renaissance (3) Credit will be granted for only one of the following: ITAL 421 or ITAL 422. Formerly ITAL 410. Major trends in Renaissance literature, art, and science. In English.

ITAL 422 The Italian Renaissance - In Italian (3) Credit will be granted for only one of the following: ITAL 421 or ITAL 422. A study of major trends of thought in Renaissance literature, art, and science. In Italian.

ITAL 470 Italian Civilization - In Italian (3) Credit will be granted for only one of the following: ITAL 470 or ITAL 370. Political, social, intellectual, literary and artistic forces shaping contemporary Italy, from the late Middle Ages to the present. In Italian.

ITAL 471 Italian Cinema: A Cultural Approach (3) Credit will be granted for only one of the following: ITAL 471 or ITAL 472. Formerly ITAL 475. The culture of Italy through the medium of film from the silent days up to the present. In English.

ITAL 472 Italian Cinema: A Cultural Approach - In Italian (3) Credit will be granted for only one of the following: ITAL 471 or ITAL 472. The culture of Italy through the medium of film from the silent days up to the present. In Italian.

ITAL 475 The Italian Opera Libretto - In English (3) Prerequisite: one course in literature. Credit will be granted for only one of the following: ITAL 376, ITAL 475, or ITAL 476. Formerly ITAL 376. History and analysis of Italian opera librettos from Monteverdi through Mozart to Verdi and Puccini. In English.

ITAL 476 The Italian Opera Libretto - In Italian (3) Credit will be granted for only one of the following: ITAL 476 or ITAL 475. History and analysis of Italian opera librettos from Monteverdi through Mozart to Verdi and Puccini. In Italian.

ITAL 498 Special Topics in Italian Literature (3) Repeatable to 6 credits if content differs.

ITAL 499 Special Topics in Italian Studies (3) Repeatable to 6 credits if content differs.

IVSP— Individual Studies Program

IVSP 317 Progress Report (1) Prerequisite: admission to IVSP major. A written analysis of the program. Students register for IVSP 317 only once, the semester before the final term.

IVSP 318 Independent Learning Activities (1-6) Prerequisite: admission to IVSP major and prior arrangements with faculty sponsor. For IVSP majors only. Repeatable to 6 credits if content differs. An independent study course which students can use for a variety of out-of-class internship and research opportunities.

IVSP 420 Senior Paper (3) Prerequisite: admission to IVSP major. For IVSP majors only. Synthesizing final paper or a final special project.

JAPN — Japanese

JAPN 101 Elementary Japanese I (6) Introduction to basic patterns of contemporary spoken Japanese and to the two phonetic syllabaries (Katakana and Hiragana).

JAPN 102 Elementary Japanese II (6) Prerequisite: JAPN 101 or equivalent. Continued introduction to the basic spoken patterns of contemporary Japanese.

JAPN 205 Intermediate Japanese I (6) Six hours of lecture per week. Prerequisite: JAPN 102 or equivalent. Not open to students who have completed JAPN 201 and JAPN 202. Comptemporary spoken and written Japanese.

JAPN 206 Intermediate Japanese II (6) Prerequisite: JAPN 205 or equivalent. Not open to students who have completed JAPN 203 and JAPN 204. Contemporary spoken and written Japanese.

JAPN 301 Advanced Japanese I (3) Prerequisites: JAPN 206 or equivalent. Advanced conversation, oral comprehension, and selected readings.

JAPN 302 Advanced Japanese II (3) Prerequisite: JAPN 301 or equivalent. Continued readings in varied modern texts and advanced conversation and oral comprehension.

JAPN 303 Business Japanese I (3) Prerequisite: JAPN 206 or equivalent. Conversation, reading, and writing applicable to Japanese business transactions, social meetings, and meetings with government organizations, with background material in English on professional business practices and social customs associated with business.

JAPN 304 Business Japanese II (3) Prerequisite: JAPN 303 or equivalent. Continuation of JAPN 303.

JAPN 317 Buddhism and Japanese Literature in Translation (3) Credit will be granted for only one of the following: JAPN 217 or JAPN 317. Religious and philosophical traditions central to Japanese imaginative life and literature from ancient to modern times.

JAPN 401 Readings in Modern Japanese I (3) Prerequisite: JAPN 302 or equivalent. Development of translation techniques, vocabulary, grammar, and reading speed. Readings in history, social sciences, modern literature, and modern newspaper and periodical literature.

JAPN 402 Readings in Modern Japanese II (3) Prerequisite: JAPN 401 or equivalent. Continuation of more advanced readings.

JAPN 403 Readings in Classical Japanese (3) Prerequisite: JAPN 302 or equivalent. Classical Japanese grammar and the varied styles of classical Japanese. Readings in classical texts drawn from the Heian, Kamakura, Muromachi, and Edo periods.

JAPN 414 Masterpieces of Classical Japanese Literature in Translation (3) Major classics, with focus on philosophical, historical and cultural backgrounds.

JAPN 415 Modern Japanese Fiction in Translation (3) Major themes and literary developments in fiction from the late 19th century to the present. Emphasis on the works of Kawabata, Tanizaki, Mishima, and Abe.

JAPN 418 Japanese Literature in Translation (3) Repeatable to 9 credits if content differs. Representative works of Japanese literature in translation.

JAPN 421 History of the Japanese Language (3) Investigation of the origin of the Japanese language, its relationship with other languages, and its development. In English.

JAPN 422 Introductory Japanese Linguistics (3) An investigation of Japanese sound patterns and syntax through a comparison with English.

JAPN 499 Directed Study in Japanese (1-3) Prerequisite: permission of instructor. Repeatable to 6 credits if content differs.

JOUR — Journalism

JOUR 100 Introduction to Mass Communication (3) Survey of the functions and effects of the mass media in the United States. A consumer's introduction to newspapers, television, radio, film, sound recording, books, magazines, and new media technology. Introduction to public relations, advertising, and news analysis.

JOUR 101 Professional Orientation (1) Formerly JOUR 001. Survey of journalism professions, emphasizing appropriate academic and career development strategies.

JOUR 198 Survey Apprenticeship (1) Prerequisite: pd. For JOUR majors only. Repeatable to 6 credits if content differs. College-monitored experience in approved mass-communications organizations and industries.

JOUR 201 Writing For Mass Media (3) Pre- or corequisite: JOUR 101. Prerequisite: 30 words per minute wordprocessing ability; and grammar competency demonstrated by a score of 52 or higher on the TSWE. Introduction to news, feature and publicity writing for the printed and electronic media, development of news concepts; laboratory in news gathering tools and writing skills.

JOUR 202 Editing For the Mass Media (3) Prerequisite: grade of C or better in JOUR 201. For JOUR majors only. Basic editing skills applicable to all mass media: copy editing, graphic principles and processes, new media technology.

JOUR 320 News Reporting (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: grade of C or better in JOUR 201. For JOUR majors only. Principles and practices of news reporting with special emphasis on news gathering for all the media; covering news beats and other news sources, including researching a news story for accuracy, comprehensiveness and interpretation.

JOUR 321 Advanced Reporting: Public Affairs (3) Prerequisite: JOUR 320. Advanced training in writing news for publication in specialized areas, particularly city, county, and federal news. Students meet in seminar with news sources and leading news reporters and work in Washington, D.C., Annapolis, and Baltimore covering news in depth for publication.

JOUR 322 Advanced Reporting: Beats and Investigation (3) Prerequisite: JOUR 320. Advanced training and practice in writing, interviewing, beat reporting and investigative techniques. Students meet in weekly seminars and work with metropolitan-area newspapers covering beats and writing stories for publication.

JOUR 323 Newspaper Editing (3) Prerequisite: grade of C or better in JOUR 202. Principles and practices of editing for publication. Copy improvement, headline writing, news photos and cutlines, wire services, copy control and scheduling, page design and layout. Introduction to computerized editing with video display terminals.

JOUR 324 News Commentary and Critical Writing (3) Not open to students who have completed JOUR 326 prior to January 1, 1992. Formerly JOUR 326. Journalistic interpretation and analysis; editorial and critical writing.

JOUR 325 Reporting from Annapolis and Washington (6) 32 hours of laboratory per week. Prerequisite: pd. Corequisite: JOUR 462. Advanced training in public affairs journalism. Students report state and federal news as part of College's Capital News Service.

JOUR 326 Supervised Internship - News Editorial (3) Prerequisites: a grade of "C" or better in JOUR 201, JOUR 202 and JOUR 320 and permission of department. For JOUR majors only. Supervised internship experience with communication professionals in newspapers, magazines, photojournalism. Relation of academic training to professional experience.

JOUR 328 Specialized News Reporting (3) Prerequisite: JOUR 320. Repeatable to 6 credits if content differs. Advanced training and practice in writing and reporting news of one specialized field of interest.

JOUR 330 Public Relations Theory (3) Prerequisite: grade of C or better in JOUR 201. For JOUR majors only. The historical development and contemporary status of public relations in business, government, associations and other organizations. Application of communication theory and social science methods to the research, planning, communication and evaluation aspects of the public relations process.

JOUR 331 Public Relations Techniques (3) Prerequisites: JOUR 330; and grade of C or better in JOUR 202. The techniques of public relations including news releases, publications and printed materials, audio-visual techniques, speeches and special events. Application of these techniques in laboratory and field projects.

JOUR 332 Specialized Writing in Public Relations (3) Prerequisite: grade of C or better in JOUR 201. Recommended: JOUR 330. Public Relations writing for science, technology, health, medicine, corporate finance, educational policy, law and government in broadcast and technical media, as well as newspapers and magazines and also including proposals, speeches and correspondence.

JOUR 333 Organizational Communication in Public Relations (3) Prerequisites: JOUR 330; and grade of C or better in JOUR 202. Theory and techniques for planning and producing organizational publications and internal communication programs. Theories of organizational communication, principles of layout and design, non-print communication media, and methods of pretesting and evaluating communications programs.

JOUR 334 Public Relations Programs (3) Prerequisite: JOUR 330. Analysis of eight major programs typically carried out by public relations professionals: employee relations, media relations, financial relations, member relations, governmental relations, community relations, fund-raising and dealing with activist public.

JOUR 336 Supervised Internship - Public Relations (3) Prerequisites: a grade of "C" or better in JOUR 201, JOUR 202, JOUR 330, and JOUR 331 and permission of department. For JOUR majors only. Supervised internship experience with communication professionals in public relations. Relation of academic training to profession al experience.

JOUR 340 Advertising Communication (3) Prerequisite: grade of C or better in JOUR 201. For JOUR majors only. Advertising as a mass communication profession and its role in the public information system of the United States. Application of communication theory and research methods to the research, planning, communication, and evaluation aspects of advertising.

JOUR 341 Advertising Techniques (3) Prerequisites: JOUR 340; and grade of C or better in JOUR 202. Writing and production of print and broadcast advertisements; application of these techniques in laboratory and field projects.

JOUR 342 Advertising Media Planning (3) Prerequisite: JOUR 340. Principles of planning, placing and evaluating advertising media in U.S. media markets. Application of theory and methods to specific advertising situations.

JOUR 346 Supervised Internship - Advertising (3) Prerequisites: a grade of "C" or better in JOUR 201, JOUR 202, JOUR 340, and either JOUR 341 or JOUR 342, and permission of department. For JOUR majors only. Supervised internship experience with communication professionals in advertising. Relation of academic training to professional experience.

JOUR 350 Photojournalism (3) Prerequisite: grade of C or better in JOUR 201. For JOUR majors only. Not open to students who have completed JOUR 372. Fundamentals of camera operation, composition, developing and printing black and white still photographs for publication; history of photojournalism.

JOUR 351 Advanced Photojournalism (3) Prerequisite: JOUR 350. Analysis of the role of photography in mass communication, with emphasis on the photographic essay, and use of the 35 mm camera. Students provide 35 mm equipment and supplies.

JOUR 352 Special Topics in Photojournalism (3) Prerequisites: JOUR 351 and permission of department. An analysis of the theory and application of advanced photographic processes to the communication of ideas, including direct audience communication, realistic and nonrealistic visual materials and media.

JOUR 360 Broadcast News I (3) Prerequisite: grade of C or better in JOUR 201. For JOUR majors only. Writing for the broadcast media and the production of news stories.

JOUR 361 Broadcast News II (3) Prerequisite: JOUR 360. Writing and editing for the broadcast media. Interpretive and documentary news stories.

JOUR 362 Broadcast News Management (3) One hour of lecture and four hours of laboratory per week. Prerequisite: JOUR 360. Management of a broadcast station's news operations.

JOUR 365 Theory of Broadcast Journalism (3) Descriptive and critical analysis of broadcast news practices; evaluation of news judgments, decision-making and organizational aspects of the broadcast news industry.

JOUR 366 Supervised Internship - Broadcast News (3) Prerequisites: a grade of "C" or better in JOUR 201, JOUR 202, and JOUR 360 and permission of department. Recommended: JOUR 361 for television internship. Supervised internship experience with communication professionals in broadcast news. Relation of academic training to professional experience.

JOUR 371 Magazine Article and Feature Writing (3) Prerequisite: JOUR 320. Types of feature articles, particularly for the magazine market, analysis of the magazine medium and specialized audiences; practice in researching and writing the feature article; analysis of free-lance markets.

JOUR 372 Magazine Photography and Illustration (3) Prerequisite: grade of C or better in JOUR 201. Not open to students who have completed JOUR 350. Camera selection and operation; film selection and processing; print making; scaling and sizing of photographs; picture layout. Students must provide 35 mm camera plus supplies.

JOUR 373 Graphics (3) Prerequisite: grade of C or better in JOUR 202. Intensive analysis of the components of publication content and design. Type and typography, printing processes, illustration and production with emphasis on contemporary technology.

JOUR 374 Magazine Production (3) Prerequisites: JOUR 371; and JOUR 373. Publication of a laboratory magazine.

JOUR 380 Science Writing for Magazines and Newspapers (3) Prerequisite: JOUR 320 or permission of department. Writing of scientific and technical material for the general audience.

JOUR 396 Supervised Internship (3) Prerequisites: grade of C or better in JOUR 202; and first course of journalism sequence related to techniques (i.e. JOUR 320; or JOUR 331; or JOUR 341; or JOUR 350; or JOUR 360; or JOUR 380) and permission of department. Internship experience with communication professionals in newspapers, news broadcasting, public relations, advertising, magazines, photojournalism, and science communication. Relation of academic training to professional experience.

JOUR 397 Professional Seminar (3) Prerequisites: grade of C or better in JOUR 201; and permission of department. Projects and discussions relating professional work experience to study of journalism. Limited to students who participated in an advanced summer internship after their junior year.

JOUR 398 Independent Study (1-3) Repeatable to 3 credits. Individual projects in journalism.

JOUR 400 Law of Mass Communication (3) Legal rights and constraints of mass media; libel, privacy, copyright, monopoly, contempt, and other aspects of the law applied to mass communication. Previous study of the law not required.

JOUR 410 History of Mass Communication (3) Development of newspapers, magazines, radio, television and motion pictures as media of mass communication. Analysis of the influences of the media on the historical development of America.

JOUR 420 Government and Mass Communication (3) Relationship between news media and government; media coverage of government and politics; governmental and political information and persuasion techniques.

JOUR 430 Comparative Mass Communication Systems (3) Comparative analysis of the role of the press in different societies.

JOUR 440 Readings in Journalism Literature (3) Prerequisite: JOUR 320 or permission of department. Analysis of books by journalists highly regarded for writing style and/or the content of their reporting with an emphasis on understanding the books in the context of national and international affairs.

JOUR 450 Mass Media in Society (3) Ethical, moral, political, economic, and social consideration of mass communication.

JOUR 451 Advertising and Society (3) Advertising as an institution with manifest economic purposes and latent social effects. Influences of advertising on people, and related issues of ethics and social responsibility.

JOUR 452 Women in the Media (3) Participation and portrayal of women in the mass media from colonial to contemporary times.

JOUR 453 News Coverage of Racial Issues (3) Junior standing. Analysis of news media coverage of issues relating to racial minorities in the United States, with special attention to Hispanics, Asian Americans, African Americans and Native Americans.

JOUR 459 Special Topics in Mass Communication (3) Repeatable to 6 credits if content differs. Issues of special concern and current interest. Open to all students.

JOUR 461 Newsroom Management (3) Prerequisite: JOUR 320 or JOUR 360 or permission of department. Organization, operation, and administration of a newsroom and its departments. Emphasis on ethical planning, personnel, leadership and content problems confronting newspaper and broadcast newsrooms.

JOUR 462 Professional Seminar in Public Affairs Reporting (3) Prerequisite: pd. Explore theoretical and practical issues in the press coverage of governments. Examine the complex press-government relationship.

JOUR 471 Public Opinion Research (3) Measurement of public opinion and media habits; role of the mass media in the formation of public opinion.

JOUR 477 Mass Communication Research (3) Prerequisite: MATH 110 or equivalent; students are encouraged to have completed the theory and technique courses in their major sequence. Communication research methods used in measuring public opinion and evaluating public relations, advertising, and mass media programs and materials.

JOUR 481 Writing the Complex Story (3) Pre- or corequisite: JOUR 371. Explanatory journalism technique applied to complex subjects (such as science, economics and large scale social change) for books, magazines and newspaper series.

JOUR 483 Senior Seminar in Public Relations (3) Prerequisite: JOUR 331; and JOUR 477. Integration of theory, techniques and research methods into the planning and execution of public relations campaigns for specific organizations. Analysis of research on the case studies of public relations.

JOUR 484 Advertising Campaigns (3) Prerequisite: JOUR 341; and JOUR 342. Planning and executing advertising campaigns in actual agency situations. Integration of advertising theories and techniques into a complete campaign.

JOUR 486 Advanced Television Journalism (3) Prerequisite: JOUR 351 or permission of department. A skills course in which students assume major responsibility for the production of a weekly TV news and public affairs program. Students will work on extended TV reporting assignments such as mini-series and news documentaries. Note: In addition to classroom time, students are required to devote time out of class in reporting and editing.

JOUR 487 Literary Journalism (3) Pre- or corequisite: JOUR 371. Practice in the use of literary techniques and especially of dramatic structure in modern newspaper series, magazine pieces and books. Analysis, researching and writing of nonfiction stories, usually with a focus on a specialized area chosen by the student.

JOUR 490 Advising Student Publications (3) Journalistic writing and editing in student newspapers, yearbooks, and magazines; libel and policy; curriculum and teaching procedures; role of student publications.

JOUR 491 Policy, Censorship, and Legal Problems of Student Publications (3) Censorship problems and court cases; legal rights of the student press; formulation of policy and legal guidelines.

JOUR 492 Typography and Layout For Student Publications (3) Type design, type families, graphics, art, photography, and editorial and advertisement layout of school newspapers, yearbooks, and magazines.

JOUR 493 Advanced Techniques For Student Publication Advisors (3) Interpretative and investigative reporting; interviewing and scientific survey methods; curriculum and courses for high school and community colleges; textbooks, teaching units, state of the art techniques and resource aids.

JOUR 494 Yearbook Short Course (1) Prerequisite: JOUR 201 or permission of department. Credit not applicable toward major in journalism. Intensive course dealing with the theme, content, copy, design, advertising, budget, finance, law and ethics of yearbook development and production.

JOUR 498 Topics in Scholastic Journalism (1-3) Repeatable if content differs. Seminars on specialized areas on the practice of scholastic journalism.

KNES — Kinesiology

KNES Activities Program Courses: 1-3 credits per course

KNES100–179 Physical Education Activities KNES Professional Program Courses:

KNES 180 Foundations of Physical Education (3) Formerly PHED 180. Introduction to the study of physical education with attention to the foundations, content and practices of human movement as the focus. The course involves lecture, discussion, and laboratory components to explore, describe, and increase understanding of physical education as it is practiced and studied.

KNES 181 Fundamentals of Movement (2) Formerly PHED 181. Introduction to the scientific foundations of human movement including factual knowledge and application of content areas such as human growth and development, anatomy, physiology, neurology, biomechanics and motor learning to fundamental movement skills.

KNES 182 Rhythmic Activities (2) Six hours of laboratory per week. Formerly PHED 182. Development of rhythmic sensitivity through analysis of rhythm and its application to movement, skills in folk, square and social dance and teaching techniques for use in schools and recreational programs.

KNES 183 Movement Content for Elementary School Children (3) Formerly PHED 183. Participation in movement activities with a focus on educational dance, gymnastics and games. Observation and analysis of movement behavior in relation to specific aspects of movement. Examination of relationships among movement forms.

KNES 200 Gymnastics Skills Laboratory (2) Formerly PHED 200. Progressive techniques of teaching and practice of skills in gymnastics.

KNES 202 Badminton Skills Laboratory (1) Formerly PHED 202. Progressive techniques of teaching and practice of skills in badminton.

KNES 204 Basketball Skills Laboratory (1) Formerly PHED 204. Progressive techniques of teaching and practice of skills in basketball.

KNES 206 Golf Skills Laboratory (1) Formerly PHED 206. Progressive techniques of teaching and practice of skills in golf.

KNES 210 Field Games Skills Laboratory (1) Formerly PHED 210. Progressive techniques of teaching and practice of skills in field games such as flag football, soccer, speedball and speed-a-way.

KNES 211 Field Hockey Skills Laboratory (1) Formerly PHED 211. Progressive techniques of teaching and practice of skills in field hockey.

KNES 213 Lacrosse Skills Laboratory (1) Formerly PHED 213. Progressive techniques of teaching and practice of skills in lacrosse.

KNES 214 Soccer Skills Laboratory (1) Formerly PHED 214. Progressive techniques of teaching and practice of skills in soccer.

KNES 215 Softball Skills Laboratory (1) Formerly PHED 215. Progressive techniques of teaching and practice of skills in softball.

KNES 217 Tennis Skills Laboratory (1) Formerly PHED 217. Progressive techniques of teaching and practice of skills in tennis.

KNES 218 Laboratory In Teaching (1) Prerequisite: permission of department. Repeatable to 2 credits. Formerly PHED 218. The course is designed to prepare the student for the student teaching experience by assisting in a class.

KNES 220 Track and Field Skills Laboratory (2) Formerly PHED 220. Progressive techniques of teaching and practice of skills in track and field.

KNES 221 Volleyball Skills Laboratory (1) Formerly PHED 221. Progressive techniques of teaching and practice of skills in volleyball.

KNES 222 Weight Training Skills Laboratory (1) Formerly PHED 222. Progressive techniques of teaching and practice of skills in weight training.

KNES 224 Aerobics Skills Laboratory (1) Formerly PHED 224. Progressive techniques of teaching and practice of skills in aerobics.

KNES 240 Exploring Cultural Diversity Through Movement (3) Cultural diversity through an analysis of the different meanings that movement activities serve within different cultural groups. Students will example how cultural affiliations can influence why and how members of different cultural groups engage in movement activities.

KNES 250 Advanced Volleyball Skills Laboratory (2) Prerequisite: KNES 221. Formerly PHED 250. Progressive techniques of teaching/coaching and practice of skills in volleyball at the advanced level.

KNES 261 Development of Endurance and Strength Fitness (3) Formerly PHED 261. An appraisal of various components of physical fitness and of a prescription exercise program. The parameters of physical fitness and the exercises to improve these parameters.

KNES 287 Sport and American Society (3) Formerly PHED 287. Sport will be related to such social problems as delinquency, segregation, collective behavior, and leisure; to social processes such as socialization, stratification, mobility, and social control; and to those familiar social institutions, the family, the school, the church, the military, the economy, the polity, and the mass media.

KNES 289 Topical Investigations (1-6) Repeatable to 6 credits. Formerly PHED 289. Independent study by an individual student or a group of students in special areas of knowledge not covered by regularly scheduled courses.

KNES 293 History of Sport in America (3) Formerly PHED 293. The growth and development of sport in America. The transformation of sport within the perspective of American history, including class sport, professionalization, amateurism, and international involvement.

KNES 300 Biomechanics of Human Motion (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: ZOOL 201; and ZOOL 202. Formerly PHED 300. The study of human movement and the physical and physiological principles upon which it depends. Body mechanics, posture, motor efficiency, sports, the performance of a typical individual and the influence of growth and development upon motor performance.

KNES 314 Methods In Physical Education (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: KNES 183. Formerly PHED 314. Application of educational philosophy and principles to class organization and techniques of teaching physical education.

KNES 333 Physical Activity for the Handicapped (3) Formerly PHED 333. Handicapped conditions, Federal and State regulations, implications for planning and implementing physical activity programs, evaluation strategies of assessing motor performance and the role of physical activity in educational programs for handicapped students.

KNES 335 Swimming Pool Management (2) Formerly PHED 335. Analysis of the position of the swimming pool manager. The systematic treatment of swimming pool water; swimming pool first aid, and laws pertaining to swimming pool operation. Qualities the student for a pool operator's license in most Maryland counties.

KNES 340 Theory of Coaching Athletics (2) Formerly PHED 340. General theory and practice of coaching selected competitive sports found in secondary schools and community recreation programs.

KNES 341 Theory of Coaching Basketball (2) Formerly PHED 341. Philosophy, preparation for season, practice organization, scouting, film analysis, and strategies.

KNES 342 Theory of Coaching Baseball (2) Formerly PHED 342. Philosophy, preparation for season, practice organization, scouting, film analysis, and strategies.

KNES 343 Theory of Coaching Football (2) Formerly PHED 343. Philosophy, preparation for season, practice organization, scouting, film analysis, and strategies.

KNES 344 Theory of Coaching Swimming (2) Formerly PHED 344. Philosophy, preparation for season, practice organization, scouting, film analysis, and strategies.

KNES 345 Theory of Coaching Track and Field (2) Formerly PHED 345. Philosophy, preparation for season, practice organization, scouting, film analysis, and strategies.

KNES 350 The Psychology of Sports (3) Formerly PHED 350. An exploration of the personality factors, including, but not limited to motivation, aggression and emotion, as they affect sports participation and motor skill performance.

KNES 351 Contemporary Issues in American Sport (3) Prerequisite: KNES 287. Formerly PHED 351. Seminar/discussion of theoretical and practical issues in contemporary sport.

KNES 360 Physiology of Exercise (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: (ZOOL 201; and ZOOL 202); or permission of department. Formerly PHED 360. A study of the physiology of exercise, including concepts of work, muscular contraction, energy transformation, metabolism, oxygen debt, and nutrition and athletic performance. Emphasis on cardiovascular and respiratory function in relation to physical activity and training.

KNES 361 Weight Control Through Diet and Exercise (3) Lecture and laboratory. Formerly PHED 361. The basic principles of weight control are given and the students participate in diet and exercise programs.

KNES 362 Philosophy of Sport (3) Formerly PHED 362. Form and content of the philosophy of sport. The basis of knowledge in and about sport, the structure and theories of the discipline, the ontological and moral implications and dilemmas involving sport, and the interactions between philosophy and the scientific and humanistic aspects of sport.

KNES 370 Motor Development (3) Formerly PHED 370. Motor development across the life span. The developmental sequences of motor skills from birth to old age; neuromaturation of neuromuscular system; analysis of the underlying mechanisms of motor skill development, and correlates of motor development.

KNES 381 Prevention and Care of Athletic Injuries (3) Prerequisites: ZOOL 201; and ZOOL 202. Formerly PHED 381. Theoretical and practical foundations of the prevention, recognition, and treatment of athletic injuries. Physical conditioning and re-conditioning, preventive taping, first aid, and various modalities are emphasized.

KNES 385 Motor Learning and Skilled Performance (3) Formerly PHED 385. A study of the research dealing with motor learning and motor performance. Scientific methodology, individual differences, specificity, proprioceptive control of movement, motivation, timing, transfer, and retention.

KNES 389 Topical Investigations (1-3) Repeatable to 6 credits. Formerly PHED 389. Independent study by an individual student or a group of students in special areas of knowledge not covered by regularly scheduled courses.

KNES 390 Practicum in Teaching Physical Education (3) Prerequisite: KNES 314. Formerly PHED 390. Teaching of children in a physical education setting. Specific emphasis on curriculum development, lesson planning, progressions and analysis of teacher behavior.

KNES 398 Honors Seminar (1) One hour of discussion/recitation per week. Prerequisite: participation in honors program. Repeatable to 3 credits. Formerly PHED 398. Guided discussion of research topics of current interest.

KNES 399 Honors Thesis (3) Prerequisites: KNES 398H; and candidacy for honors in physical education. Formerly PHED 399. Advisement will be on the individual basis. Thesis must be defended in the honors seminar.

KNES 402 Biomechanics of Sport (3) Prerequisite KNES 300. Formerly PHED 402. Mechanical determinants influencing sport techniques. A quantitative, scientific basis for sport analysis with emphasis on the application to numerous sport activities. Evaluation and quantification of the filmed performance of athletes.

KNES 406 Perceptual-Motor Development in the Young Child (3) Formerly PHED 406. Analysis of perceptual-motor components, their progression, interrelationships, developmental activities and evaluation. Study of the growth and other factors that influence perceptual-motor development in the young child.

KNES 421 Elementary School Physical Education: A Movement Approach (3) Prerequisite: KNES 183. Formerly PHED 421. An analysis of movement philosophy and content, focusing upon cognitive, psychomotor and affective developmental characteristics in relation to progression and planning of games, educational dance and educational gymnastics for elementary school age children.

KNES 450 Sport Psychology: Applications (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: KNES 350. Formerly PHED 450. Application of the principles of sport psychology to the competitive or recreational athlete, with an emphasis on the techniques that have been used with competitors to maximize skill acquisition and performance.

KNES 451 Sport and the American Woman (3) Formerly PHED 451. The expanding perception of the woman's role in American society; etiology of sex differences; socialization of sex roles in America; development of "masculinity" and "femininity" in children through early play experiences; competition and women; personality of the female athlete; and personal motivations of female athletes and projected future for sport and the American.

KNES 455 Scientific Bases of Athletic Conditioning (3) Prerequisite: KNES 360. Formerly PHED 455. An examination of physical fitness/athletic conditioning programs stressing the practical application of exercise physiology theory for enhancing athletic performance. Cardiovascular considerations, strength and power development, nutrition, speed, muscular endurance, environmental considerations and ergogenic aids.

KNES 461 Exercise and Body Composition (3) Prerequisite: KNES 360.-Formerly PHED 461. Physiological concepts relating body composition factors to exercise and human performance. The scientific basis for the establishment and evaluation of conditioning programs where body composition may play an important role, such as weight control and athletics.

KNES 462 Neural Basis of Human Movement (3) Prerequisites: {ZOOL 201; and ZOOL 202; and KNES 385} or permission of department. Formerly PHED 462. An introduction to the neural substrates which underlie postural and volitional movement. Neuroanatomical and neurophysiological basis of motor functioning; past and present conceptualizations of motor control and coordination; movement disorders; and maturation of the neuromuscular system.

KNES 466 Graded Exercise Testing (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: KNES 360 or permission of department. Functional and diagnostic examination of the cardiovascular responses to graded exercise testing. Emphasis on electrophysiology, mechanisms of arrythmias, normal electrical activation of the heart, axis termination and the normal 12-lead electrocardiogram.

KNES 470 Seminar For Student Teachers (2) Formerly PHED- 470. A seminar held concurrently with student teaching in physical education. An intensive examination of current problems and issues in teaching physical education.

KNES 480 Measurement in Physical Education (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: MATH 110. Formerly PHED 480. A study of the principles and techniques of educational measurement as applied to teaching of physical education; study of the functions and techniques of measurement in the evaluation of student progress toward the objectives of physical education and in the evaluation of the effectiveness of teaching

KNES 481 Biophysical Aspects of Human Movement (3) Prerequisites: KNES 300; and KNES 360; and KNES 370; and KNES 385. Formerly PHED 481. Scientific principles and research techniques in the investigation of the biophysical basis of human movement.

KNES 482 Socio-behavioral Aspects of Human Movement (3) Prerequisites: KNES 287; and KNES 293, and KNES 350. Formerly PHED 482. Derivation, formulation, and application of research in the socio-behavioralaspects of human movement.

KNES 486 Politics and Economics of Organized Contemporary Sport (3) Prerequisite: KNES 287. Formerly PHED 486. Interdependence of sport, politics, and economics. The structure, organization, and uses of sport in contemporary societies.

KNES 487 Sports in World Society (3) Prerequisite: SOCY 100. Formerly PHED 487. Impact and influence of sports are assessed from a sociopolitical frame of reference nationally and internationally.

KNES 489 Field Laboratory Projects and Workshop (1-6) Repeatable to 6 credits. Formerly PHED 489. Workshops and research projects in special areas of knowledge not covered by regularly structured courses.

KNES 490 Administration of Physical Education and Sport (3) Prerequisite: KNES 180 or KNES 287. Formerly PHED 490. Principles and functions of administration in physical education and sport. Administrative duties in relation to financing, budgeting, staffing, planning, organizing, directing, coordinating, evaluating, reporting, and discipline.

KNES 491 The Curriculum in Physical Education (3) Formerly PHED 491. Curriculum sources, principles, and planning concepts, with emphasis on using valid criteria for the selection of content for physical education programs.

KNES 492 History of the Sportswoman in American Organizations (3) Prerequisite: KNES 293. Formerly PHED 492. Women's involvement in and contributions to America's sporting culture, especially in the 19th and 20th Centuries until enactment of Title IX. The interactions among historical perceptions of women's roles, responsibilities, and potential and their sporting lives; the effects of role stereotyping and opportunities for and directions taken in developing sport organizations. Other issues affecting women's involvement in institutional sport.

KNES 493 History and Philosophy of Sport and Physical Education (3) Formerly PHED 493. History and philosophical implications of sport and physical education through ancient, medieval, and contemporary periods in western civilization.

KNES 496 Quantitative Methods (3) Formerly PHED 496. Statistical techniques most frequently used in research pertaining to physical education. Effort is made to provide the student with the necessary skills, and to acquaint him with the interpretations and applications of these techniques.

KNES 497 Independent Studies Seminar (3) Formerly PHED 497. Discussions of contemporary issues vital to the discipline, critiques of research in the student's area/areas of special interest, completion of a major project where the student will be asked to demonstrate the ability to carry out investigative processes in problem solving and critical writing under faculty direction.

KNES 498 Special Topics in Physical Education (3) Prerequisite: permission of department. Repeatable when the subject matter is different. Formerly PHED 498. Topics of special interest in areas not covered by regularly scheduled courses.

LATN — Latin

LATN 101 Elementary Latin I (4) Four hours of discussion/recitation per week. A student who has two units of Latin in high school may register for LATN 101 for the purposes of review, but ordinarily not for credit.

LATN 102 Elementary Latin II (4) Four hours of discussion/recitation per week. Prerequisite: LATN 101 at UMCP or permission of department.

LATN 120 Intensive Latin (4) Prerequisite: permission of department. Not open for credit to students with credit for LATN 102. Elements of Latin grammar and vocabulary; elementary reading. The first year's study of Latin compressed into a single semester

LATN 201 Intermediate Latin (4) Prerequisite: LATN 102 at UMCP or permission of department. Formerly LATN 203.

LATN 220 Intermediate Intensive Latin (4) Prerequisite: LATN 102, or LATN 120, or equivalent. Not open to students with credit for LATN 204. Review of Latin grammar; reading in prose and poetry from selected authors.

LATN 301 Plautus (3) Plautine drama. Literary, linguistic and socio-cultural aspects.

LATN 302 Ovid (3) Major works of Ovidian poetry. Literary and moral atmosphere of Augustan age.

LATN 351 Horace (3) Prerequisite: LATN 305 or equivalent.

LATN 352 Livy (3) Prerequisite: LATN 351 or equivalent.

LATN 400 level course prerequisite: LATN 361 or equivalent

LATN 401 Latin Lyric Poetry (3) Latin lyric poetry. Emphasis on Horace and Catullus.

LATN 402 Tacitus (3)

LATN 403 Roman Satire (3)

LATN 405 Lucretius (3)

LATN 410 Latin Historians (3) Latin historical writing as a literary genre. Influences, style, and literary techniques.

LATN 415 Virgil's Aeneid (3) Formerly LATN 305. Virgil's Aeneid: readings of selections in Latin and of the entire epic in English translation along with critical essays.

LATN 420 Cicero and Caesar (3) Reading and analysis of texts by M. Tullius Cicero and C. Julius Caesar, with emphasis on the relationships between them and on the period of the Civil War.

LATN 424 Silver Latin (3) Reading and analysis of selected texts. Emphasis on the role of Nero and Seneca in literary developments.

LATN 472 Historical Development of the Latin Language (3) Credit will be granted for only one of the following: LATN 472 or LING 431. An analysis of the development of the Latin language from archaic times to the Middle Ages.

LATN 488 Latin Readings (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. The reading of one or more selected Latin authors from antiquity through the Renaissance. Reports.

LATN 490 Survey of Latin Literature (3) Survey of major authors and genres, with extensive readings from a variety of authors and review of grammar.

LATN 499 Independent Study in Latin Language and Literature (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

LBSC — Library Science

LBSC 381 Basic Reference and Information Sources (3) Introduction to reference/information service and the sources, tools, and technology essential to the reference process. Selection, evaluation, and utilization of all types of reference tools for library media centers.

LBSC 383 Library Materials for Children and Youth (3) Literature and media for children and youth, including fiction and information materials: books, periodicals, video, filmstrips, films, microforms, records, pictures, pamphlets. Introduction to reading, viewing, and listening guidance techniques.

LBSC 488 Recent Trends and Issues in Library and Information Services (1-3) Repeatable to 9 credits. Discussions of recent trends and issues in library and information services. Designed for practicing professionals.

LBSC 499 Workshops, Clinics, and Institutes (1-9) Repeatable to 9 credits. Workshops, clinics, and institutes developed around specific topics or problems. Primarily for practicing librarians.

LING — Linguistics

LING 200 Introductory Linguistics (3) Not open to students who have completed ANTH 371 or HESP 120. Ways of studying human language; basic concepts of modern linguistic analysis (sound systems, word formation, syntax, meaning). The nature of human language; the social aspects of language; language change; dialects; writing systems; language universals, etc.

LING 240 Language and Mind (3) The study of language as a cognitive phenomenon. Ways of representing people's knowledge of their native language, ways in which that knowledge is attained naturally by children, and how it is used in speaking and listening. Relevant philosophical literature. Relationship to study of other cognitive abilities: reasoning, perception, sensory-motor development.

LING 311 Syntax I (3) Prerequisite: LING 240. Basic concepts, analytical techniques of generative syntax, relation to empirical limits imposed by viewing grammars as representations of a component of human mind. Aspects of current theories.

LING 312 Syntax II (3) Prerequisite: LING 311. Continuation of LING 311. Development of theories of syntax. Criteria for revising theories. Methods and strategies of "scientific" efforts to explain natural phenomena.

LING 321 Phonology I (3) Prerequisite: LING 240. Properties of sound systems of human languages, basic concepts and analytical techniques of generative phonology. Empirical limits imposed by viewing grammars as cognitive representations. Physiological properties and phonological systems; articulatory phonetics and distinctive feature theory.

LING 322 Phonology II (3) Prerequisite: LING 321. Continuation of LING 321. Development of theories of phonology. Criteria for revising theories.

LING 330 Historical Linguistics (3) A traditional presentation of language change. Language types and families, sounds and writing systems, grammatical categories. Reconstruction of proto-languages by internal and comparative methods.

LING 350 Philosophy of Language (3) Prerequisite: PHIL 170 or PHIL 173 or PHIL 371; or LING 311. The nature and function of language and other forms of symbolism from a philosophical perspective.

LING 410 Grammar and Meaning (3) Prerequisite: LING 312. The basic notions of semantic theory: reference, quantification, scope relations, compositionality, thematic relations, tense and time, etc. The role these notions play in grammars of natural languages. Properties of logical form and relationship with syntax.

LING 411 Comparative Syntax (3) Prerequisite: LING 312. Comparison of data from a variety of languages with respect to some aspect of current versions of syntactic theory in order to investigate how parameters of universal grammar are fixed differently in different languages. Attempts to work out fragments of grammars for some languages.

LING 419 Topics in Syntax (3) Repeatable to 6 credits if content differs.

LING 420 Word Formation (3) Prerequisite: LING 322. Definition of shape and meaning of possible words, both across languages and within particular languages. Interaction between principles of word formation and other components of a grammar: syntax, logical form and phonology.

LING 421 Advanced Phonology (3) Prerequisite: LING 322. Topics in current phonological theory, as they relate to data from the sound systems of various languages. Segmental and prosodic analysis. Discussion of autosegmental theory, metrical theory, etc.

LING 429 Topics in Phonology (3) Repeatable to 6 credits if content differs.

LING 431 Indo-European Studies (3) Prerequisite: LING 330. Credit will be granted for only one of the following: LATN 472 or LING 431. Reconstruction of Proto-Indo-European according to the theories of the Neo-grammarians and their followers. The development of Proto-Indo-European into its descendant languages.

LING 439 Topics in Diachronic Linguistics (3) Repeatable to 6 credits if content differs.

LING 440 Grammars and Cognition (3) Relationship between the structure, development and functioning of grammars and the structure, development and functioning of other mental systems. Interpretations of experimental and observational work on children's language, aphasia, speech production and comprehension.

LING 445 Computer Models of Language (3) Prerequisite: LING 240. The use of linguistic theory to improve psychological models of language comprehension. Formal and computer modelling of language processing systems.

LING 451 Grammars and Variation (3) Prerequisite: LING 311. Grammars and the use of language in a variety of styles: formal, casual, literary, etc. Consequences for concepts of grammars. Variation theory. Literary styles.

LING 453 Mathematical Approaches to Language (3) Prerequisite: LING 312. The aspects of mathematics used in linguistic discussions: recursion theory, Chomsky's hierarchy of grammars, set theory, Boolean algebra, finite state grammars, context-free grammars, etc. Applications to theories of grammars. Formalizations of grammatical theories.

LING 455 Second Language Teaching (3) Relationship between theories of grammars, and techniques used for teaching and learning second languages, and for the teaching and learning of English in schools.

LING 457 Grammars and Discourse (3) Prerequisite: LING 240. The use of a person's grammar in communication, sentence production. Speech act theory, pragmatics.

LING 487 Computer Science for Cognitive Studies (3) Also offered as PHIL 487. Credit will be granted for only one of the following: LING 487 or PHIL 487. List processing and discrete mathematics. Preparation for the study of artificial intelligence and other mathematically oriented branches of cognitive studies. Intended for students of linguistics, philosophy, and psychology. LISP computer language, graphs and trees, the concept of computational complexity, search algorithms.

LING 499 Directed Studies in Linguistics (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Independent study or research on language under the supervision of a faculty member.

MAPL —Applied Mathematics

MAPL 460 Computational Methods (3) Prerequisites: (a grade of C or better in MATH 240 and MATH 241); and (CMSC 104 or CMSC 113). Also offered as CMSC 460. Credit will be granted for only one of the following: MAPL/CMSC 460 or MAPL/CMSC 466. Basic computational methods for interpolation, least squares, approximation, numerical quadrature, numerical solution of polynomial and transcendental equations, systems of linear equations and initial value problems for ordinary differential equations. Emphasis on methods and their computational properties rather than their analytic aspects. Intended primarily for students in the physical and engineering sciences.

MAPL 466 Introduction to Numerical Analysis I (3) Prerequisites: (a grade of C or better in MATH 240 and MATH 241); and CMSC 104. Also offered as CMSC 466. Credit will be granted for only one of the following: MAPL/CMSC 460 or MAPL/CMSC 466. Floating point computations, direct methods for linear systems, interpolation, solution of nonlinear equations.

MAPL 467 Introduction to Numerical Analysis II (3) Prerequisites: MAPL/CMSC 466 with a grade of C or better. Also offered as CMSC 467. Credit will be granted for only one of the following: CMSC 467 or MAPL 467. Advanced interpolation, linear least squares, eigenvalue problems, ordinary differential equations, fast Fourier transforms.

MAPL 472 Methods and Models in Applied Mathematics I (3) Prerequisites: (MATH 241; and MATH 246; and MATH 240; and PHYS 161 or 171) or permission of department. Recommended: one of the following: MATH 410, MATH 414, MATH 415, MATH 462, MATH 463, PHYS 262, PHYS 273. Also offered as MATH 472. Credit will be granted for only one of the following: MATH 472 and MAPL 472. Mathematical models in fluid dynamics and elasticity, both linear and non-linear partial differential equations, variational characterizations in eigenvalue problems, numerical algorithms. Additional optional topics as time permits. Some examples are Hamiltonian systems, Maxwell's equations, non-linear programming.

MAPL 473 Methods and Models in Applied Mathematics II (3) Prerequisite: MAPL 472 or permission of department. Also offered as MATH 473. Credit will be granted for only one of the following: MAPL 473 or MATH 473. Continuation of the two-semester sequence, MAPL 472 and MAPL 473.

MAPL 477 Optimization (3) Prerequisites: (CMSC/MAPL 460, or CMSC/MAPL 466 or CMSC/MAPL 467) with a grade of C or better. Also offered as CMSC 477. Credit will be granted for only one of the following: CMSC 477 or MAPL 477. Linear programming including the simplex algorithm and dual linear programs, convex sets and elements of convex programming, combinatorial optimization, integer programming.

MAPL 498 Selected Topics in Applied Mathematics (1-3) Repeatable to 6 credits if content differs. Topics in applied mathematics of special interest to advanced undergraduate students.

MATH — Mathematics

MATH 001 Review of High School Algebra (3) Recommended for students who plan to take MATH 110 or MATH 002 but are not currently qualified to do so. Special fee required in addition to the regular tuition charge. This course does not carry credit towards any degree at the University. Review of the algebraic skills fundamental to any further study of mathematics. Exponents, polynomials, linear equations in one and two variables, quadratic equations.

MATH 002 Advanced Review of High School Algebra (3) Recommended for students who plan to take but who are not currently qualified for MATH 115. Prerequisite: MATH 001 or satisfactory score on the mathematics placement exam. Special fee required in addition to the regular tuition charge. This course does not carry credit towards any degree at the University. Review of high school algebra at a faster pace and at a more advanced level than MATH 001. Exponents; polynomials; linear equations in one and two variables; quadratic equations; and polynomial, rational, exponential and logarithmic functions.

MATH 110 Elementary Mathematical Models (3) Prerequisite: permission of department based on satisfactory score on the mathematics placement exam, or MATH 001. Not open to students majoring in mathematics, engineering, and the physical sciences. Not open to students who have completed MATH 140, 220, or any MATH or STAT course for which MATH 140 or 220 is a prerequisite. Elementary introduction to models useful in the biological, management, and social sciences. Matrices, systems of linear equations, and linear inequalities in two or three variables are used to solve simple but representative problems in linear programming, stochastic processes, game theory, and the mathematics of mortgages and annuities.

MATH 111 Introduction to Probability (3) Prerequisite: permission of department based on satisfactory score on the mathematics placement exam, or MATH 110, or MATH 115. Not open to students majoring in mathematics, engineering or the physical sciences. Not open to students who have completed STAT 100 or any MATH or STAT course with a prerequisite of MATH 141. Credit will be granted for only one of the following: MATH 111 or STAT 100. Logic, Boolean algebra, counting, probability, random variables, expectation applications of the normal probability distribution.

MATH 115 Precalculus (3) Prerequisite: permission of department based on satisfactory score on the mathematics placement exam or MATH 002. Not open to students who have completed MATH 140 or any MATH or STAT course for which MATH 140 is a prerequisite. Preparation for MATH 220 or MATH 140. Elementary functions and graphs: polynomials, rational functions, exponential and logarithmic functions, trigonometric functions. Algebraic techniques preparatory for calculus.

MATH 140 Calculus I (4) Prerequisite: permission of department based on 3 1/2 years of college preparatory mathematics (including trigonometry) and satisfactory score on the mathematics placement exam or MATH 115. Credit will be granted for only one of the following: MATH 140 or MATH 220. Introduction to calculus, including functions, limits, continuity, derivatives and applications of the derivative, sketching of graphs of functions, definite and indefinite integrals, and calculation of area. The course is especially recommended for science and mathematics majors.

MATH 141 Calculus II (4) Prerequisite: MATH 140 or equivalent. Credit will be granted for only one of the following: MATH 141 or MATH 221. Continuation of MATH 140, including techniques of integration, improper integrals, applications of integration (such as volumes, work, arc length, moments), inverse functions, exponential and logarithmic functions, sequences and series.

MATH 210 Elements of Mathematics (4) Prerequisite: one year of college preparatory algebra. Required for majors in elementary education, and open only to students in this field. Topics from algebra and number theory, designed to provide insight into arithmetic: inductive proof, the natural number system based on the Peano axioms; mathematical systems, groups, fields; the system of integers; the system of rational numbers; congruence, divisibility; systems of numeration.

MATH 211 Elements of Geometry (4) Prerequisite: MATH 210. Structure of mathematics systems, algebra of sets, geometrical structures, logic, measurement, congruence, similarity, graphs in the plane, geometry on the sphere.

MATH 220 Elementary Calculus I (3) Prerequisite: permission of department based on 3 1/2 years of college preparatory mathematics (including trigonometry) and satisfactory performance on the mathematics placement exam, or MATH 115. Not open to students majoring in mathematics, engineering or the physical sciences. Credit will be granted for only one of the following: MATH 140 or MATH 220. Basic ideas of differential and integral calculus, with emphasis on elementary techniques of differentiation and applications.

MATH 221 Elementary Calculus II (3) Prerequisite: MATH 220, or MATH 140, or equivalent. Not open to students majoring in mathematics, engineering or the physical sciences. Credit will be granted for only one of the following: MATH 141 or MATH 221. Differential and integral calculus, with emphasis on elementary techniques of integration and applications.

MATH 240 Introduction to Linear Algebra (4) Prerequisite: MATH 141 or equivalent. Credit will be granted for only one of the following: MATH 240 or MATH 400 or MATH 461. Basic concepts of linear algebra: vector spaces, applications to line and plane geometry, linear equations and matrices, similar matrices, linear transformations, eigenvalues, determinants and quadratic forms.

MATH 241 Calculus III (4) Prerequisites: MATH 141 and any one of the following: MATH 240, or ENES 102, or PHYS 171. Introduction to multivariable calculus, including vectors and vector-valued functions, partial derivatives and applications of partial derivatives (such as tangent planes and LaGrange multipliers), multiple integrals, volume, surface area, and the classical theorems of Green, Stokes and Gauss.

MATH 246 Differential Equations for Scientists and Engineers (3) Prerequisite: MATH 141 or equivalent. An introduction to the basic methods of solving ordinary differential equations. Equations of first and second order, linear differential equations, Laplace transforms, numerical methods, and the qualitative theory of differential equations.

MATH 250 Analysis I (Honors) (4) Prerequisite: permission of department. First semester of a year course giving a rigorous treatment of calculus in one and several variables. Topics covered during the year: properties of the real and complex numbers, Euclidean spaces, basic set theory and topology, metric spaces, sequences and series, continuity, differentiability, uniform convergence, Riemann-Stieltjes integrals, multiple integrals, inverse and implicit function theorems, line integrals, theorems of Green, Gauss, and Stokes.

MATH 251 Analysis II (Honors) (4) Prerequisite: MATH 250. Continuation of MATH 250. Students successfully completing MATH 250 - MATH 251 will not need to take MATH 410 - MATH 411.

MATH 299 Selected Topics in Mathematics (1-3) Prerequisite: permission of department. Topics of special interest under the general guidance of the departmental committee on undergraduate studies.

MATH 400 Vectors and Matrices (3) Prerequisite: MATH 221 or equivalent. Not open to students in the CMPS or Engineering Colleges. Credit will be granted for only one of the following: MATH 240, MATH 400, or MATH 461. The essentials of matrix theory needed in the management, social and biological sciences. Main topics: systems of linear equations, linear independence, rank, orthogonal transformations, eigenvalues, the principal axes theorem. Typical applications: linear models in economics and in statistics, Markov chains, age-specific population growth.

MATH 401 Applications of Linear Algebra (3) Prerequisite: MATH 240 or MATH 461. Various applications of linear algebra: theory of finite games, linear programming, matrix methods as applied to finite Markov chains, random walk, incidence matrices, graphs and directed graphs, networks, transportation problems.

MATH 402 Algebraic Structures (3) Prerequisite: MATH 240 or equivalent. Not open to mathematics graduate students. Credit will be granted for only one of the following: MATH 402 or MATH 403. For students having only limited experience with rigorous mathematical proofs. Parallels MATH 403. Students planning graduate work in mathematics should take MATH 403. Groups, rings, integral domains and fields, detailed study of several groups; properties of integers and polynomials. Emphasis is on the origin of the mathematical ideas studied and the logical structure of the subject.

MATH 403 Introduction to Abstract Algebra (3) Prerequisites: MATH 240 and MATH 241, or equivalent. Credit will be granted for only one of the following: MATH 402 or MATH 403. Integers; groups, rings, integral domains, fields.

MATH 404 Field Theory (3) Prerequisite: MATH 403. Algebraic and transcendental elements, Galois theory, constructions with straight-edge and compass, solutions of equations of low degrees, insolubility of the Quintic, Sylow theorems, fundamental theorem of finite Abelian groups.

MATH 405 Linear Algebra (3) Prerequisite: MATH 240 or MATH 461. An abstract treatment of finite dimensional vector spaces. Linear transformations and their invariants.

MATH 406 Introduction to Number Theory (3) Prerequisite: MATH 141 or permission of department. Integers, divisibility, prime numbers, unique factorization, congruences, quadratic reciprocity, Diophantine equations and arithmetic functions.

MATH 410 Advanced Calculus I (3) Prerequisites: MATH 240; and MATH 241. First semester of a year course. Subjects covered during the year are: sequences and series of numbers, continuity and differentiability of real valued functions of one variable, the Rieman integral, sequences of functions, and power series. Functions of several variables including partial derivatives, multiple integrals, line and surface integrals. The implicit function theorem.

MATH 411 Advanced Calculus II (3) Prerequisites: MATH 410. Continuation of MATH 410.

MATH 414 Differential Equations (3) Prerequisites: MATH 410; and MATH 240 or equivalent. Existence and uniqueness theorems for initial value problems. Linear theory: fundamental matrix solutions, variation of constants formula, Floquet theory for periodic linear systems. Asymptotic orbital and Lyapunov stability with phase plane diagrams. Boundary value theory and series solutions.

MATH 415 Introduction to Partial Differential Equations (3) Prerequisites: MATH 246; and (MATH 411 or MATH 251). MATH 411 and MATH 415 may be taken concurrently. Credit will be granted for only one of the following: MATH 415 or MATH 462. First order equations, linear second order equations in two variables, one dimensional wave equation and the method of separation of variables, and other topics such as harmonic functions, the heat equation, and the wave equation in space.

MATH 417 Introduction to Fourier Analysis (3) Prerequisite: MATH 410. Fourier series. Fourier and Laplace transforms.

MATH 430 Euclidean and Non-Euclidean Geometries (3) Prerequisite: MATH 141. Hilbert's axioms for Euclidean geometry. Neutral geometry: the consistency of the hyperbolic parallel postulate and the inconsistency of the elliptic parallel postulate with neutral geometry. Models of hyerbolic geometry. Existence and properties of isometries.

MATH 432 Introduction to Point Set Topology (3) Prerequisite: MATH 410 or equivalent. Connectedness, compactness, transformations, homomorphisms; application of these concepts to various spaces, with particular attention to the Euclidean plane.

MATH 436 Differential Geometry of Curves and Surfaces I (3) Prerequisites: MATH 241; and either MATH 240 or MATH 461. Curves in the plane and Euclidean space, moving frames, surfaces in Euclidean space, orientability of surfaces; Gaussian and mean curvatures; surfaces of revolution, ruled surfaces, minimal surfaces, special curves on surfaces, "Theorema Egregium"; the intrinsic geometry of surfaces.

MATH 437 Differential Geometry of Curves and Surfaces II (3) Prerequisite: MATH 436. Differential forms, the Euler characteristic, Gauss-Bonnet theorem, the fundamental group; an outline of the topological classification of compact surfaces, vector fields, geodesics and Jacobi fields; classical calculus of variations, global differential geometry of surfaces, and elementary Riemann surface theory.

MATH 445 Elementary Mathematical Logic (3) Prerequisite: MATH 141. Credit will be granted for only one of the following. MATH 445 or MATH 450/CMSC 450. Elementary development of propositional and predicate logic, including semantics and deductive systems and with a discussion of completeness, incompleteness and the decision problem.

MATH 446 Axiomatic Set Theory (3) Prerequisite: MATH 403 or MATH 410. Development of a system of axiomatic set theory, choice principles, induction principles, ordinal arithmetic including discussion of cancellation laws, divisibility, canonical expansions, cardinal arithmetic including connections with the axiom of choice, Hartog's theorem, Konig's theorem, properties of regular, singular, and inaccessible cardinals.

MATH 447 Introduction to Mathematical Logic (3) Prerequisite: MATH 403 or MATH 410. Formal propositional logic, completeness, independence, decidability of the system, formal quantificational logic, first-order axiomatic theories, extended Godel completeness theorem, Lowenheim-Skolem theorem, model-theoretical applications.

MATH 450 Logic for Computer Science (3) Prerequisites: (CMSC 251 and MATH 141) (with grade of C or better). Also offered as CMSC 450. Credit will be granted for only one of the following: MATH 445 or MATH 450/CMSC 450. Elementary development of propositional and first-order logic accessible to the advanced undergraduate computer science student, including the resolution method in propositional logic and Herbrand's Unsatisfiability Theorem in first-order logic. Included are the concepts of truth, interpretation, validity, provability, soundness, completeness, incompleteness, decidability and semi-decidability.

MATH 452 Introduction to Dynamics and Chaos (3) Prerequisite: MATH 246. An introduction to mathematical dynamics and chaos. Orbits, bifurcations, Cantor sets and horseshoes, symbolic dynamics, fractal dimension, notions of stability, flows and chaos. Includes motivation and historical perspectives, as well as examples of fundamental maps studied in dynamics and applications of dynamics.

MATH 461 Linear Algebra for Scientists and Engineers (3) Prerequisites: MATH 141 and one MATH/STAT course for which MATH 141 is a prerequisite. This course cannot be used toward the upper level math requirements for MATH/STAT majors. Credit will be granted for only one of the following: MATH 240, MATH 400 or MATH 461. Basic concepts of linear algebra. This course is similar to MATH 240, but with more extensive coverage of the topics needed

in applied linear algebra: change of basis, complex eigenvalues, diagonalization, the Jordan canonical form.

MATH 462 Partial Differential Equations for Scientists and Engineers (3) Prerequisites: MATH 241; and MATH 246. Credit will be granted for only one of the following: MATH 462 or MATH 415. Linear spaces and operators, orthogonality, Sturm-Liouville problems and eigenfunction expansions for ordinary differential equations, introduction to partial differential equations, including the heat equation, wave equation and Laplace's equation, boundary value problems, initial value problems, and initial-boundary value problems.

MATH 463 Complex Variables for Scientists and Engineers (3) Prerequisite: MATH 241 or equivalent. The algebra of complex numbers, analytic functions, mapping properties of the elementary functions. Cauchy integral formula. Theory of residues and application to evaluation of integrals. Conformal mapping.

MATH 464 Transform Methods for Scientists and Engineers (3) Prerequisites: MATH 246; and MATH 463. Fourier series, Fourier and Laplace transforms. Evaluation of the complex inversion integral by the theory of residues. Applications to ordinary and partial differential equations of mathematical physics: solutions using transforms and separation of variables. Additional topics such as Bessel functions and calculus of variations.

MATH 472 Methods and Models in Applied Mathematics I (3) Prerequisite: (MATH 241; and MATH 246; and MATH 240; and PHYS 161 or PHYS 171) or permission of department. Recommended: one of: MATH 410, MATH 414, MATH 415, MATH 462, MATH 463 or PHYS 262, PHYS 273. Also offered as MAPL 472. Credit will be granted for only one of the following: MATH 472 and MAPL 472. Mathematical models in fluid dynamics and elasticity, both linear and non-linear partial differential equations, variational characterizations in eigenvalue problems, numerical algorithms. Additional optional topics as time permits. Some examples are Hamiltonian systems, Maxwell's equations, non-linear programming.

MATH 473 Methods and Models in Applied Mathematics II (3) Prerequisite: MATH 472 or permission of department. Also offered as MAPL 473. Credit will be granted for only one of the following: MATH 473 and MAPL 473. Continuation of the two semester sequence MATH 472 and MATH 473.

MATH 475 Combinatorics and Graph Theory (3) Prerequisites: MATH 240; and MATH 241. Also offered as CMSC 475. Credit will be granted for only one of the following: MATH 475 or CMSC 475. General enumeration methods, difference equations, generating functions. Elements of graph theory, matrix representations of graphs, applications of graph theory to transport networks, matching theory and graphical algorithms.

MATH 478 Selected Topics For Teachers of Mathematics (1-3) Prerequisite: one year of college mathematics or permission of department. (This course cannot be used toward the upper level math requirements for MATH/STAT majors).

MATH 498 Selected Topics In Mathematics (1-9) Honors students register for reading courses under this number. Repeatable to 9 credits if content differs. Topics of special interest to advanced undergraduate students will be offered occasionally under the general guidance of the departmental committee on undergraduate studies.

MATH 499 Honors Seminar (2) Prerequisite: permission of department. Not open to graduate students. Formerly MATH 398. Faculty supervised reports by students on mathematical literature. Both oral and written presentation on special topics of current interest.

MEES — Marine-Estuarine-Environmental Sciences

MEES 440 Essentials of Toxicology (2) Prerequisite: BCHM 261 or BCHM 461. Principles involved in the assessment of responses of organisms to toxic chemicals, including systemic and organ toxicology, carcinogenesis, teratogenesis, and consideration of the effects of major groups of toxicants.

MEES 498 Topics in Marine-Estuarine-Environmental Sciences (1-4) Lecture and or laboratory series organized to study a selected area of marine-estuarine-environmental sciences not otherwise considered in formal courses.

METO — Meteorology

METO 123 Causes and Implications of Global Change (3) Also offered as BOTN 123, GEOG 123, and GEOL 123. Credit will be granted for only one of the following: BOTN 123, GEOG 123, GEOL 123, or METO 123. This course offers a unique experience in integrating physical, chemical, geological, and biological sciences with geographical, economic, sociological, and political knowledge skills toward a better understanding of global change. Review of environmental science relating to weather and climate change, acid precipitation, ozone holes, global warming, and impacts on biology, agriculture, and human behavior. Study of the natural, long-term variability of the global environment, and what influence mankind may have in perturbing it from its natural evolution. Concepts of how physical, biological, and human behavioral systems interact, and the repercussions which may follow from human endeavors. The manner in which to approach decision and policy making related to issues of global change.

METO 200 Introduction to Meteorology (3) Prerequisites: PHYS 161 or equivalent, and CHEM 103. Broad survey of the state of knowledge and problems of atmospheric science. Origin and structure of the atmosphere, meteorological observations, weather maps, forecasting, satellites, energetics, wind, general circulation, storms, severe weather, climate change, air pollution, and weather modification.

METO 400 The Atmosphere (3) Prerequisites: CHEM 103; and MATH 241; and MATH 246; and PHYS 263. The atmosphere and its weather and climate systems. Composition of the atmosphere, energy sources and sinks, winds, storms, global circulation. The application of basic classical physics, chemistry, and mathematics to the study of the atmosphere.

METO 401 Global Environment (3) Prerequisite: METO 400. The global weather and climate system; the natural variability of the atmosphere-ocean-biosphere. Potential human effects: greenhouse effects, deforestation, acid rain, ozone depletion, nuclear winter. Social, political and economic effects of changes in global environment. Policy options.

METO 434 Air Pollution (3) Prerequisites: (CHEM 113 and MATH 241) or permission of department. Production, transformation, transport and removal of air pollutants. The problems of photochemical smog, the greenhouse effect, stratospheric ozone, acid rain, and visibility. Analytical techniques for gases and particles.

METO 499 Special Problems in Atmospheric Science (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Research or special study in the field of meteorology and the atmospheric and oceanic sciences.

MICB —Microbiology

The following courses may involve the use of animals. Students who are concerned about the use of animals in teaching have the responsibility to contact the instructor, prior to course enrollment, to determine whether animals are to be used in the course, whether class exercises involving animals are optional or required and what alternatives, if any, are available.

MICB 100 Microbes and Society (4) Three hours of lecture and two hours of laboratory per week. Credit will be granted for only one of the following: MICB 100 or MICB 200. Introduction to the historical, societal and conceptual aspects of microbiology and biotechnology.

MICB 200 General Microbiology (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: BIOL 105. Credit will be granted for only one of the following: MICB 100 or MICB 200. Fundamental concepts in morphology, physiology, genetics, immunology, ecology, and pathogenic microbiology. Applications of microbiology to medicine, the food industry and biotechnology.

MICB 310 Applied Microbiology (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: MICB 200. The application of microorganisms and microbiological principles to industrial processes. Control of microorganisms, sterilization, disinfection, antibiotics.

MICB 379 Honors Research (2-3) Prerequisite: admission to departmental honors program. Repeatable to 12 credits. Research project carried out under guidance of faculty advisor.

MICB 380 Bacterial Genetics (4) Two hours of lecture and four hours of laboratory per week. Prerequisites: (CHEM 243 or CHEM 245) and MICB 200. Organization, replication, expression, mutation and transfer of the genetic material of bacteria and bacteriophages. Techniques of genetic study.

MICB 388 Special Topics in Microbiology (1-4) Prerequisite: 8 credits in microbiology. Presentation and discussion of special subjects in the field of microbiology. A maximum of four credit hours of MICB 388 may be applied to a major in microbiology.

MICB 399 Microbiological Problems (3) Prerequisites: 16 credits in microbiology and permission of department. This course is arranged to provide qualified majors in microbiology and majors in applied fields an opportunity to pursue specific microbiological problems under the supervision of a member of the department.

MICB 400 Systematic Microbiology (2) Prerequisite: 8 credits in microbiology. History and philosophy of classification. Alpha, numerical and molecular genetic taxonomy. Methods used in microbial identification and classification.

MICB 410 History of Microbiology (1) Prerequisite: MICB major. History and integration of the fundamental discoveries of the science. Modern aspects of abiogenesis, fermentation, and disease causation in relation to early theories.

MICB 420 Epidemiology and Public Health (2) Prerequisite: MICB 200. History, characteristic features of epidemiology; the important responsibilities of public health; vital statistics.

MICB 440 Pathogenic Microbiology (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: MICB 200. The role of bacteria and fungi in the diseases of humans with emphasis upon the differentiation and culture of microorganisms, types of disease, modes of disease transmission, prophylactic, therapeutic, and epidemiological aspects.

MICB 450 Immunology (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: MICB 440. Credit will be granted for only one of the following: ZOOL 455 or MICB 450. Principles of immunity; hypersensitiveness. Fundamental techniques of immunology.

MICB 453 Recombinant DNA Laboratory (3) Pre- or corequisite: course in "Recombinant DNA". Credit will be granted for only one of the following: MICB 453 or ZOOL 453. An advanced course offering hands-on experience in performing recombinant DNA experiments. Techniques required for cloning procaryotic genes in Escherichia coli.

MICB 460 General Virology (3) Prerequisite: MICB 440 or equivalent. Discussion of the physical and chemical nature of viruses, virus cultivation and assay methods, virus replication, viral diseases with emphasis on the oncogenic viruses, viral genetics, and charactenstics of the major virus groups.

MICB 470 Microbial Physiology (3) Prerequisite: MICB 200. Pre- or corequisite: BCHM 462. Microbial cellular and population growth. Fermentation metabolism, physiology of anaerobiosis, and energy conservation and transformation in bacterial membranes. Efficiency of energy utilization for growth. Membrane structure and transport. Bacterial chemotaxis. Regulation of bacterial chromosome replication, RNA and protein synthesis. Control of metabolic pathways.

MICB 480 Microbial Ecology (3) Prerequisites: MICB 200; and CHEM 243 or CHEM 245. Interaction of microorganisms with the environment, other microorganisms and with higher organisms. Roles of microorganisms in the biosphere. Microorganisms and current environmental problems.

MICB 490 Microbial Fermentations (3) Prerequisite: MICB 470. Study of fermentative metabolism in bacteria and yeasts, primary and secondary metabolites, culture and medium development, mass cultivation of microorganisms; industrial processes for organic solvents, acids, amino acids, antibiotics, bioconversions, immobi-

lized enzyme and cell reactors; special problems with genetically engineered cultures

MUED — Music Education

MUED 197 Pre-Professional Experiences (1) Limited to music education majors. An orientation into the role of the music teacher in the school and community. Class meets one hour a week for planning and discussion. Students spend one afternoon a week assigned to various music education activities.

MUED 410 Instrumental Arranging (2) Prerequisites: MUSC 250 and permission of department. Arranging for school bands and orchestras from the elementary through high school levels.

MUED 411 Instrumental Music: Methods and Materials For the Elementary School (3) A comprehensive study of instructional materials and teaching techniques for beginning instrumental classes--winds, strings and percussion.

MUED 420 Instrumental Music: Methods, Materials and Administration for Secondary School (2) A comprehensive study of instructional and program materials, rehearsal techniques and program planning for junior and senior High School bands and orchestras. Organization, scheduling, budgeting and purchasing are included.

MUED 438 Special Problems in the Teaching of Instrumental Music (2-3) Prerequisite: MUSC 113-213 or the equivalent. A study, through practice on minor instruments, of the problems encountered in public school teaching of orchestral instruments. Literature and teaching materials, minor repairs, and adjustment of instruments are included. The course may be taken for credit three times since one of four groups of instruments: strings, woodwind, brass or percussion will be studied each time the course is offered.

MUED 450 Music in Early Childhood Education (3) Prerequisite: MUSC 155 or equivalent. Creative experiences in songs and rhythms, correlation of music and everyday teaching with the abilities and development of each level; study of songs and materials; observation and teaching experience with each age level.

MUED 470 General Concepts For Teaching Music (1) Corequisite: MUED 411 or MUED 471. Basic philosophical, psychological, educational considerations for a total music program K-12; strategies for teaching tonal and rhythmic concepts; evaluation techniques and field experiences in designated schools.

MUED 471 Methods For Teaching Elementary General Music (3) A study of curriculum, materials, and teaching techniques for the development of meaningful music experiences which contribute to a sequential musical growth for children in the elementary schools.

MUED 472 Choral Techniques and Repertoire (2) Prerequisites: MUED 470 and MUSC 490. Rehearsal techniques for developing appropriate diction, tone, production, intonation, phrasing, and interpretation of choral music; examination of a wide variety of repertoire for use by choral performing groups on the elementary and secondary levels.

MUED 478 Special Topics in Music Education (1-2) Prerequisite: MUED 470 or permission of department. Repeatable to 5 credits. Each topic focuses on a specific aspect of the music instructional program; collectively, the topics cover a wide range of subject matter relevant to today's schools.

MUED 499 Workshops, Clinics, Institutes (2-6) Innovative and experimental dimensions of music education will be offered to meet the needs of music teachers and music supervisors and to allow students to individualize their programs. The maximum number credits that may be earned under this course symbol toward any degree is six semester hours; the symbol may be used two or more times until six semester hours have been reached.

MUSC — Music

MUSC 100 Beginning Class Voice (2) Four hours of laboratory per week. A laboratory course involving a variety of voices and vocal problems. Principles of correct breathing as applied to singing; fundamentals of tone production and diction. Repertoire of folk songs and songs of the Classical and Romantic periods. Development of students' voices.

MUSC 102 Beginning Class Piano I (2) Four hours of laboratory per week. Functional piano training for beginners. Development of techniques for school and community playing. Basic piano techniques; chord, arpeggio, and scale techniques; melody and song playing; simple accompaniments, improvisation for accompaniments and rhythms; sight reading and transposition, and playing by ear.

MUSC 103 Beginning Class Piano II (2) Four hours of laboratory per week. Prerequisite: MUSC 102 or permission of department. Functional piano training for beginners. Development of techniques useful for school and community playing. Basic piano techniques; chord, arpeggio, and scale techniques; melody and song playing; simple accompaniments, improvisation for accompaniments and rhythms; sight reading and transposition, and playing by ear. MUSC 103 is a continuation of MUSC 102; elementary repertoire is begun.

MUSC 110 Class Study of String Instruments (2) Four hours of laboratory per week. Open only to majors in music education (vocal option). Basic principles of string playing, and a survey of all string instruments.

MUSC 111 Class Study of Wind and Percussion Instruments (2) Four hours of laboratory per week. Open only to majors in music education (vocal option). A survey of wind and percussion instruments with emphasis on ensemble training. The student will acquire an adequate playing technique on one instrument and gain an understanding of the acoustical and construction principles of the others.

MUSC 113 Class Study: Violin (2) Four hours of laboratory per week. Open only to majors in music (instrumental option). A study of the violin with emphasis on ensemble training. The student will acquire an adequate playing technique.

MUSC 114 Class Study: Cello and Bass (2) Four hours of laboratory per week. Open only to majors in music education (instrumental option). A study of the instruments with emphasis on ensemble training. The student will acquire an adequate playing technique.

MUSC 116 Class Study: Clarinet (2) Four hours of laboratory per week. Open only to majors in music education (instrumental option). A study of the clarinet with emphasis on ensemble training. The student will acquire an adequate playing technique.

MUSC 117 Class Study: Flute, Oboe, Bassoon, and Saxophone (2) Four hours of laboratory per week. Open only to majors in music education (instrumental option). A study of the instruments with emphasis on ensemble training. The student will acquire an adequate playing technique on two to four instruments, and an understanding of the acoustical and construction principles of the others.

MUSC 120 Class Study: Cornet (2) Four hours of laboratory per week. Open only to majors in music education (instrumental option). A study of the cornet with emphasis on ensemble training. The student will acquire an adequate playing technique.

MUSC 121 Class Study: Horn, Trombone, Euphonium, and Tuba (2) Four hours of laboratory per week. Open only to majors in music education (instrumental option). A study of the instruments with emphasis on ensemble training. The student will acquire an adequate playing technique on two to four instruments, and an understanding of the acoustical and construction principles of the others.

MUSC 123 Movement for Singers (1) Systematic exercises, improvisations and dances in conjunction with artistic vocal expression. Performance and critique of stage deportment, gestures and recital techniques.

MUSC 126 Vocal Diction: English and Latin (1) Augmentation of private voice study. Phonetics and diction for singers of English and Latin vocal literature.

MUSC 127 Vocal Diction: Italian and Spanish (1) Augmentation of private voice study. Phonetics and diction for singers of Italian and Spanish vocal literature.

MUSC 128 Sight Reading For Pianists (2) Repeatable to 4 credits. A course to give the piano major an opportunity to develop proficiency in sight reading at the keyboard.

MUSC 129 Ensemble (1) Three hours of laboratory per week. Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC 129, the student will elect MUSC 229 for two additional semesters and MUSC 329 thereafter

MUSC 130 Survey of Music Literature (3) Three hours of lecture and one hour of laboratory per week. Open to all students except music and music education majors. A study of the principles upon which music is based, and an introduction to the musical repertory performed in America today

MUSC 140 Music Fundamentals I (3) Limited to non-music majors. Introductory theory course. Notation, scales, intervals, triads, rhythm, form, and basic aural skills.

MUSC 150 Theory of Music I (3) Prerequisite: departmental audition and entrance examination. For MUSC majors only. A study of basic concepts and skills in tonal melody and harmony through analysis and composition.

MUSC 151 Theory of Music II (3) Prerequisite: a grade of C or better in MUSC 150. A continuation of MUSC 150, including study of more advanced harmonic techniques of the eighteenth century, such as modulation and chromatic harmonies. Emphasis on sight singing, ear training, analysis, and compositional skills.

MUSC 155 Fundamentals for the Classroom Teacher (3) Open to students majoring in pre-early childhood education, pre-elementary education, elementary education, or childhood education; other students take MUSC 150. Credit will be granted for only one of the following: MUSC 150 or MUSC 155. The fundamentals of music theory and practice, related to the needs of the classroom and kindergarten teacher, and organized in accordance with the six-area concept of musical learning.

MUSC 200 Intermediate Class Voice I (2) Four hours of laboratory per week. Prerequisite: MUSC 100 or equivalent vocal training. Continuation of MUSC 100, with more advanced repertory for solo voice and small ensembles. A special section for music education majors will include the study of methods and materials for teaching class voice.

MUSC 202 Intermediate Class Piano I (2) Four hours of laboratory per week. Prerequisite: MUSC 103 or equivalent piano training. Advanced keyboard techniques. Continuation of skills introduced in MUSC 103. Transposition, modulation, and sight reading; methods of teaching functional piano.

MUSC 203 Intermediate Class Piano II (2) Four hours of laboratory per week. Prerequisite: MUSC 202 or equivalent piano training. Advanced keyboard techniques. Continuation of skills introduced in MUSC 202. Transposition, modulation, and sight reading; methods of teaching functional piano. Development of style in playing accompaniments and in playing for community singing. More advanced repertory.

MUSC 210 The Impact of Music on Life (3) Music as a part of culture. Materials drawn from traditions throughout the globe to illustrate issues of historical and contemporary significance, including the impact of race, class and gender on the study of music.

MUSC 215 The Art of the Performer (3) A study of music as recreated and communicated by one or more performers through recital-lecture programs. The soloist, the ensemble performer, the conductor; style, technique, and interpretation; programming, listener, audience, and media. Presentations by Department of Music performance faculty, students, and, when possible, visiting artists. Open to non-music majors.

MUSC 217 Class Composition I (2) Prerequisite: MUSC 151 and permission of department. Principles of musical composition and their application to the smaller forms. Original writing in nineteenth and twentieth century musical idioms for various media.

MUSC 218 Class Composition II (2) Prerequisite: MUSC 217 and permission of department. Continuation of MUSC 217. May be repeated for credit, but only one successful attempt may be applied towards baccalaureate degree requirements.

MUSC 226 Vocal Diction: French (1) Augmentation of private voice study. Phonetics and diction for singers of French vocal literature.

MUSC 227 Vocal Diction: German (1) Augmentation of private study. Phonetics and diction for singers of German vocal literature.

MUSC 228 Accompanying For Pianist (2) Prerequisite: MUSC 228. Repeatable to 4 credits. A course to give the piano major experience in dealing with the problems of accompanying at an intermediate stage of difficulty. Guidance and instruction in class will be supplemented by extensive experience working as an accompanist in applied studios.

MUSC 229 Ensemble (1) Three hours of laboratory per week. Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC 129, the student will elect MUSC 229 for two additional semesters and MUSC 329 thereafter.

MUSC 230 History of Music I (3) Prerequisite: MUSC 250 or equivalent. A historical study of western music from Corelli through Beethoven.

MUSC 250 Advanced Theory of Music I (4) Prerequisite: MUSC 151 with a minimum grade of C. A continuation of MUSC 151, with further study of chromatic and modulatory techniques of the nineteenth century. Emphasis on sight singing, ear training, analysis, and compositional skills.

MUSC 251 Advanced Theory of Music II (4) Prerequisite: a grade of C or better in MUSC 250. A continuation of MUSC 250, concentrating on late nineteenth-century chromatic harmony and an introduction to twentieth-century melody and harmony. Emphasis on sight singing, ear training, analysis, and compositional skills.

MUSC 320 Epic as Song and Saga: Cross-Cultural Perspectives (3) Prerequisite: MUSC 130 or MUSC 140 or MUSC 210 or permission of department. An examination of oral epic traditions in selected diverse cultural settings. Universal themes and forms of expression are examined and compared through analysis of literary content, musical context, and modes of performance, as documented in texts and field-recorded oral performances.

MUSC 328 Chamber Music Performance for Pianists (2) Repeatable to 4 credits. A course to give the piano major experience in dealing with the problems of playing chamber music at a moderately difficult level. Class instruction will center around actual rehearsal and performance situations and will be supplemented by further experience working in chamber ensemble in applied studios.

MUSC 329 Ensemble (1) Three hours of laboratory per week. Rehearsal and performance of selected works for small ensembles of instruments, piano, or small vocal groups. After two registrations in MUSC 129, the student will elect MUSC 229 for two additional semesters and MUSC 329 thereafter.

MUSC 330 History of Music II (3) Prerequisite: MUSC 250 or equivalent. A historical study of western music from the Romantic era to the present.

MUSC 331 History of Music III (3) Prerequisite: MUSC 230 and MUSC 330. A historical study of western music from Antiquity through the Baroque, ending with a review of all periods of music history.

MUSC 339 Honors in Music (3) Prerequisite: permission of department. Corequisite: MUSC 349. Repeatable to 6 credits. The production of one or more recitals or lecture-recitals; one or more compositions; or one or more honors theses in addition to regular degree requirements. Two semesters required.

MUSC 340 Music Literature Survey I (3) Prerequisite: MUSC 130 or equivalent. Limited to non-music majors. Masterpieces of the symphonic and operatic repertory including works selected from Bach, Mozart, Beethoven, Brahms, Wagner, Verdi, and Debussy

MUSC 341 Music Literature Survey II (3) Prerequisite: MUSC 130 or equivalent. Limited to non-music majors. Specialized music repertory, including medieval, liturgical drama, Handel trio sonatas, Schubert Lieder, Bartok string quartets, electronic music.

MUSC 345 Jazz Theory and Improvisation I (3) Prerequisite: MUSC 251 or permission of department. Jazz theory, notational conventions, improvisation techniques, reading and analysis of music, and performance in small combo format.

MUSC 346 Jazz Theory and Improvisation II (3) Prerequisite: MUSC 345 or permission of department. Continuation of MUSC 345 including scoring and transcription.

MUSC 349 Honors Seminar in Music (1) Corequisite. MUSC 339. Repeatable to 2 credits. Group discussion of projects undertaken in MUSC 339. Two semesters required.

MUSC 379 Opera Workshop (2) 10 hours of laboratory per week. Repeatable to 8 credits. Open to music and non-music majors (by audition). Operatic production and performance, performance techniques and coaching, stage direction, set design, costume design, and make-up. Repertory will include smaller operatic works, excerpts, or scenes.

MUSC 388 Music Internship (3) Prerequisite: permission of department. Corequisite: MUSC 389. Repeatable to 6 credits. Pre-professional field work in music.

MUSC 389 Music Internship Analysis (1) Corequisite: MUSC 388. Repeatable to 2 credits. Documentation and evaluation of field work experience.

MUSC 400 Music Pedagogy (3) Pre- or corequisite: MUSC 418 or a more advanced course in applied music. Conference course. A study of major pedagogical treatises in music, and an evaluation of pedagogical techniques, materials, and procedures.

MUSC 415 Music Management (3) Prerequisite: permission of department. Application of management concepts to music administration.

MUSC 428 Repertoire Coaching of Vocal or Chamber Music (2) Pre- or corequisite: MUSC 328. A course for piano students who wish to go further than the work offered in MUSC 128, MUSC 228, and MUSC 328 by becoming specialists in the areas of vocal coaching or chamber music coaching. Elements of pedagogy, conducting, and responsible artistic decision-making for the entire musical production.

MUSC 429 Opera Theater (2-3) 10 hours of laboratory per week. Open to music and non-music majors with permission of department. Repeatable to 12 credits. Advanced techniques of operatic production; preparation, rehearsal, and performance of operatic works from both the traditional and contemporary repertory.

MUSC 430 American Musical Experience: North America (3) Prerequisite: successful completion of MUSC 210 or MUSC 130. Many musical styles found in North America portray the ideas and beliefs that characterize our diverse society. Specific problems and issues in American society examined through the American musical experience.

MUSC 432 Music in World Cultures I (3) Prerequisite: MUSC 130 or permission of department. Asian musics from Japan to the Arab countries analyzed in terms of musical, social and aesthetic approaches.

MUSC 433 Music in World Cultures II (3) Prerequisite: MUSC 130 or permission of department. Music of the Balkans, Africa, South and North America analyzed in terms of musical, social and aesthetic interrelationships.

MUSC 436 Jazz: Then and Now (3) Major styles and influential artists of the past 75 years of jazz.

MUSC 438 Area Studies in Ethnomusicology (3) Prerequisite: MUSC 432 or MUSC 433 or equivalent. Repeatable to 9 credits if content differs. Advanced study of musics in selected regions of the world.

MUSC 439 Collegium Musicum (1) Prerequisite: permission of department. Repeatable to 5 credits. Open to undergraduates and graduates, music majors and non-majors. Procurement, edition, and performance of music not belonging to a standard repertory early music, compositions for unusual performing media, works which demand reconstruction of their original circumstances of performance. Outcome of a semester's work may be one or more performances for the public.

MUSC 443 Solo Vocal Literature (3) Prerequisite: MUSC 330, MUSC 331 or equivalent. The study of solo vocal literature from the Baroque Cantata to the Art Song of the present. The Lied, Melodie, vocal chamber music, and the orchestral song are examined.

MUSC 445 Survey of the Opera (3) Prerequisite: MUSC 330, MUSC 331 or equivalent. A study of the music, librettos and composers of the standard operas

MUSC 448 Selected Topics in Music (1-3) Prerequisite: permission of department. A maximum of three credits may be applied to music major requirements. 56 semester hours. Repeatable to 6 credits if content differs.

MUSC 450 Musical Form (3) Prerequisite: MUSC 251. A study of the principles of organization in music with emphasis on eighteenth and nineteenth century European music. Reading and analysis of scores exemplifying the musical forms.

MUSC 451 Analysis of Music (3) Prerequisite: MUSC 450 or permission of department. An advanced course in the analysis of tonal music. Discussion of individual works, with emphasis on their unique characteristics and on the relation of analysis to performance.

MUSC 452 Keyboard Harmony (2) Prerequisite MUSC 251. Keyboard performance of musical score for vocal and instrumental ensembles and keyboard realization of basso continuo parts.

MUSC 453 Class Study of Guitar and Recorder (2) Three hours of laboratory per week. Prerequisite: permission of department. Study and development of instrumental technique, pedagogical practices, and materials relating to group performance.

MUSC 455 Theory of Jazz (3) Prerequisite: MUSC 250 or permission of department. For MUSC majors only. An aural-theoretical examination of melodic and harmonic function in jazz with emphasis on bebop. "Layered" harmonic analysis combined with melodic analysis of solo transcriptions applied to the creation of small group arrangments of "standard" tunes.

MUSC 457 Electronic Music Composition (2) Prerequisite: MUSC 250 and permission of department. Theory and practice of electronic music, electronically-generated sound, and its modulation in the voltage-controlled studio.

MUSC 460 Tonal Counterpoint I (2) Prerequisite: MUSC 251 or permission of department. A course in eighteenth-century contrapuntal techniques, analysis and original composition of two-voice dances, preludes, and inventions.

MUSC 461 Tonal Counterpoint II (2) Prerequisite MUSC 460. A continuation of MUSC 460. Analysis and original composition of larger works displaying imitation in more than two voices, including the chorale prelude and fugue.

MUSC 467 Piano Pedagogy I (3) A study of major pedagogical treatises in music, and an evaluation of pedagogical techniques, matenals, and procedures.

MUSC 468 Piano Pedagogy II (3) Prerequisite: MUSC 467. Repeatable to 6 credits. Application of the studies begun in MUSC 467 to the actual lesson situation. Evaluation of results.

MUSC 470 Harmonic and Contrapuntal Practices of the Twentieth Century (2) Prerequisite: MUSC 251 or equivalent. A theoretical and analytical study of twentieth century matenals.

MUSC 471 Contemporary Compositional Techniques (2) Prerequisite: MUSC 470 or permission of department. Continuation of MUSC 470, with emphasis on the analysis of individual works written since 1945.

MUSC 480 Music in Antiquity and the Middle Ages (3) Survey of western music from Hellenic times to 1450.

MUSC 481 Music in the Renaissance (3) Survey of western music from 1450 to 1600.

MUSC 482 Music in the Baroque Era (3) Survey of western music from 1600 to 1750.

MUSC 483 Music in the Classic Era (3) Survey of western music from 1750 to 1820.

MUSC 484 Music in the Romantic Era (3) Survey of western music from 1820 to 1900.

MUSC 485 Music in the 20th Century (3) Survey of western music from 1900 to the present.

MUSC 486 Orchestration I (2) Prerequisite MUSC 251. A study of the ranges, musical functions and technical characteristics of the instruments and their color possibilities in various combinations. Practical experience in orchestrating for small and large ensembles.

MUSC 490 Conducting (2) Prerequisite: MUSC 251 Vocal and instrumental baton techniques.

MUSC 491 Conducting II (2) Prerequisite: MUSC 490 or equivalent. Baton techniques applied to score reading, rehearsal techniques, tone production, style and interpretation.

MUSC 492 Keyboard Music I (3) The history and literature of harpsichord and solo piano music from its beginning to the romantic period. Emphasis is placed on those segments of repertory which are encountered in performance and teaching situations at the present time.

MUSC 493 Keyboard Music II (3) Prerequisite: MUSC 492. The history and literature of harpsichord and solo piano music from the Romantic period to the present. Emphasis is placed on those segments of repertory which are encountered in performance and teaching situations at the present time.

MUSC 494 Survey of Theory (3) Prerequisite: MUSC 251. A study of the major contributions of music theorists from Greek antiquity through the twentieth century.

MUSC 499 Independent Studies (2-3) Prerequisite: permission of department. May be repeated once for credit. Independent research on a topic chosen in consultation with the instructor, which may culminate in a paper or appropnate project.

MUSP — Music Performance

Undergraduate Music Performance Courses are available in three series:

Minor Series: 2-credits each course. Prerequisite: permission of department chairperson. Limited to music majors studying a secondary instrument and to non-music majors. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 102. Transfer students are evaluated for higher placement after one semester of study. One-half hour private lesson per week plus assigned independent practice.

MUSP 102, 103 Freshman Courses.

MUSP 202, 203 Sophomore Courses.

MUSP 302, 303 Junior Courses.

MUSP 402, 403 Senior Courses.

Principal Series: 2 or 4 credits each course. Prerequisites: departmental audition, entrance examination, and permission of department chairperson. Limited to majors in music programs other than performance and composition. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 109. Transfer students are evaluated for higher placement after one semester of study. One-hour private lesson per week plus assigned independent practice. Courses 109, 208, and 409 may be repeated once for credit, but only one successful attempt in each course may be applied towards baccalaureate degree requirements.

MUSP 109,110, Freshman Courses.

MUSP 207, 208 Sophomore Courses.

MUSP 305, 306 Junior Courses.

MUSP 409, 410 Senior Courses. Recital required in MUSP 410.

Major Series: 2 or 4 credits each course. Prerequisites: departmental audition, entrance examination, and permission of department chairperson. Limited to majors in performance and composition. Each course in the series must be taken in sequence. The initial election for all new students, both freshman and transfer, is 119. Transfer students are evaluated for higher placement after one semester of study. One-hour private lesson per week plus assigned independent practice. Courses 119, 218, and 419 may be repeated once for credit, but only one successful attempt in each course may be applied towards baccalaureate degree requirements.

MUSP 119, 120 Freshman Courses.

MUSP 217, 218 Sophomore Courses.

MUSP 315, 316 Junior Courses.

MUSP 419, 420 Senior Courses. Recital required in MUSP 420. Instrument designation: each student taking a music performance course must indicate the instrument chosen by adding a suffix to the proper course number, such as: MUSP 102A music performance--piano. A--piano; B--voice; C--violin; D--viola; E--cello; F--bass; G--flute; H--oboe; I--clarinet; J--bassoon; K--saxophone; L--horn; M--trumpet; N--trombone; O--tuba; P--euphonium; Q--percussion; T--composition; U--world instruments; V--harp; W--electronic composition; X--hist inst - keyboard; Y--hist inst - strings; Z--hist inst - winds.

NRMT — Natural Resources Management

NRMT 314 Biology and Management of Finfish (4) Two hours of lecture and six hours of laboratory per week. Prerequisite: one year of biology or zoology. Formerly AGRI 314. Fundamentals of individual and population dynamics; theory and practice of sampling fish populations; management schemes.

NRMT 389 Internship (3) Prerequisite: permission of department. Repeatable to 6 credits. Formerly AGRI 389. Students are placed in work experiences related to their stated career goals for a minimum of eight hours a week for a semester. Each student must do an in-depth study in some portion of the work experience and produce a special project and report related to this study. A student work log is also required. An evaluation from the external supervisor of the project will be required.

NRMT 411 Biology and Management of Shellfish (4) Two hours of lecture and six hours of laboratory per week. Prerequisite: one year of biology or zoology. Formerly AGRI 411. Identification, biology, management, and culture of commercially important molluscs and crustacea. The shellfisheries of the world, with emphasis on those of the northwestern Atlantic Ocean and the Chesapeake Bay. Field trips.

NRMT 460 Principles of Wildlife Management (3) Three hours of lecture per week. Three Saturday field trips are scheduled Prerequisite: two semesters of laboratory biology. Ecological principles and requirements of wildlife as bases for management, and introduction to the scientific literature. Conflicts in wildlife management, government administration of wildlife resources, legislation, and history of the wildlife management profession.

NRMT 461 Urban Wildlife Management (3) Two lectures per week. Two Saturday field trips are scheduled. Ecology and management of wildlife in urban areas. For students in biological sciences, geography, landscape design, natural resources management, recreation and urban studies. Planning, design, and wildlife conservation in landscape ecology. Public attitudes, preferences, and values, reviews of private conservation organizations.

NRMT 470 Natural Resources Management (4) Senior standing. For NRMT majors only. Field work, and independent research on watersheds. Intensive seminar on resource management planning and report preparation.

NRMT 479 Tropical Ecology and Resource Management (1-6) Prerequisites: (BIOL 106) and (introductory economics course) and (permission of department). Repeatable to 10 credits if content differs. Tropical ecosystems and issues of human use and impact. Includes lectures which lead up to an off-campus trip in a tropical environment.

NRMT 487 Conservation of Natural Resources I (3) Formerly AEED 487. Designed primarily for teachers. Study of state's natural resources: soil, water, fisheries, wildlife, forests and minerals; natural resources problems and practices. Extensive field study Concentration on subject matter Taken concurrently with NRMT 497 in summer season.

NRMT 489 Field Experience (1-4) Prerequisite: permission of department. Repeatable to 6 credits. Formerly AEED 489 Planned field experience for both major and non-major students.

NRMT 497 Conservation of Natural Resources II (3) Formerly AEED 497. Designed primarily for teachers. Study of state's natural resources: soil, water, fisheries, wildlife, forests and minerals; natural resources problems and practices. Extensive field study. Methods of teaching conservation included. Takenrconcurrently with NRMT 487 in summer season.

NRMT 499 Special Problems (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs.

NUSC — Nutritional Sciences

The following courses may involve the use of animals. Students who are concerned about the use of animals in teaching have the responsibility to contact the instructor, prior to course enrollment, to determine whether animals are to be used in the course, whether class exercises involving animals are optional or required and what alternatives, if any, are available.

NUSC 402 Fundamentals of Nutrition (3) Prerequisites: CHEM 104; and ANSC 212. Recommended: BCHM 261. Also offered as ANSC 401. A study of the fundamental role of all nutrients in the body including their digestion, absorption, and metabolism. Dietary requirements and nutritional deficiency syndromes of laboratory and farm animals and man.

NUSC 425 International Nutrition (3) Prerequisite: course in basic nutrition. Also offered as NUTR 425. Nutritional status of world population and local, national, and international programs for improvement.

NUSC 450 Advanced Human Nutrition II (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: permission of department; NUTR 440; and BCHM 261 or concurrent registration in BCHM 462. Also offered as NUTR 450. A critical study of physiological and metabolic influences on utilization of water soluble vitamins and minerals. Consideration of nutrition and the life cycle, with emphasis on current problems in human nutrition.

NUSC 460 Therapeutic Human Nutrition (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: NUTR 440 and NUTR 450. Also offered as NUTR 460. Modifications of the normal adequate diet to meet human nutritional needs in acute and chronic diseases and metabolic disorders.

NUTR — Nutrition

The following courses may involve the use of animals. Students who are concerned about the use of animals in teaching have the responsibility to contact the instructor, prior to course enrollment, to determine whether animals are to be used in the course, whether class exercises involving animals are optional or required and what alternatives, if any, are available.

NUTR 100 Elements of Nutrition (3) Fundamentals of human nutrition. Nutrient requirements related to changing individual and family needs.

NUTR 200 Nutrition for Health Services (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: CHEM 104 or CHEM 233; and ZOOL 201 or ZOOL 202 or ZOOL 211. Nutrition related to maintenance of normal health and prevention of disease; nutritional requirements for individuals in different stages of development; current concerns in nutrition for the professional in health services.

NUTR 315 Maternal, Infant and Child Nutrition (3) Prerequisite: NUTR 100 or NUTR 200. Nutritional needs of the mother, infant and child and the relation of nutrition to physical and mental growth. Intended primarily for non-majors.

NUTR 330 Nutritional Biochemistry (3) Prerequisites: CHEM 104 or CHEM 233 or CHEM 235; NUTR 100 or

NUTR 200. This course is designed to meet the needs of departmental majors in the area of nutritional biochemistry.

NUTR 335 History of Nutrition (3) Prerequisite: course in basic nutrition. The development of knowledge in nutrition, including the biographies of creative nutrition researchers and the nature of the discovery process. The use of hypotheses to focus exploration and the testing and evaluation of important hypotheses in nutrition.

NUTR 425 International Nutrition (3) Prerequisite: course in basic nutrition. Also offered as NUSC 425. Nutritional status of world populations; consequences of malnutrition on health and mental development; and local, national, and international programs for nutritional improvement.

NUTR 440 Advanced Human Nutrition I (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: (NUTR 330; and ZOOL 202; and NUTR 100 or NUTR 200) or permission of department. A critical study of physiological and metabolic influences on utilization of carbohydrates, lipids, protein and fat soluble vitamins, with particular emphasis on current problems in human nutrition.

NUTR 450 Advanced Human Nutrition II (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: NUTR 440 or permission of department. Also offered as NUSC 450. A critical study of physiological and metabolic influences on utilization of water soluble vitamins and minerals. Consideration of nutrition and the life cycle, with emphasis on current problems in human nutrition.

NUTR 460 Therapeutic Human Nutrition (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: NUTR 440 and NUTR 450. Also offered as NUSC 460. Modifications of the normal adequate diet to meet human nutritional needs in acute and chronic diseases and metabolic disorders.

NUTR 468 Practicum in Nutrition (1-6) Prerequisite: permission of department. Repeatable to 6 credits. In service training and practical experience in the application of the principles of normal and/or therapeutic nutrition in an approved community agency, clinical facility or nutrition research laboratory.

NUTR 470 Community Nutrition (3) Prerequisites: NUTR 440 or permission of department. A study of nutrition education principles and techniques for use with children and adults; program development, implementation, and evaluation; community nutrition programs and problems.

NUTR 475 Dynamics of Community Nutrition (3) Prerequisite: NUTR 470 or permission of department. The practice of community nutrition. Community assessment, nutrition program planning, implementation and evaluation; nutrition education and counseling; grantsmanship; and the legislative process.

NUTR 490 Special Problems in Nutrition (2-3) Prerequisite: NUTR 440 and permission of department. Individual selected problems in the area of human nutrition.

NUTR 498 Selected Topics (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Selected current aspects of nutrition.

PHIL — Philosophy

PHIL 100 Introduction to Philosophy (3) An introduction to the literature, problems, and methods of philosophy either through a study of some of the main figures in philosophic thought or through an examination of some of the central and recurring problems of philosophy.

PHIL 101 The Structure of Knowledge (3) Introduction to the literature, problems, and methods of philosophy through a study of problems concerning knowledge, belief, and evidence. The emphasis is on Western philosophy.

PHIL 102 Truth and Reality (3) Literature, problems, and methods of philosophy through study of questions about the nature of what exists, truth, and problems of knowledge. Emphasis on Western philosophy and science.

PHIL 103 Self and Identity (3) An introduction to the literature, problems, and methods of philosophy through a study of problems about the self and personal identity. The primary emphasis is on Western philosophy, science and literature.

PHIL 104 Action and Responsibility (3) Literature, problems, and methods of philosophy through a study of problems concerning actions, responsibility, and related topics in ethical theory. Emphasis on Western philosophy.

PHIL 105 God and Cosmos (3) Not open to students who have completed PHIL 236. Literature, problems, and methods of philosophy through a study of problems about God, self, and cosmos, and the relations among them. Emphasis on Western philosophy.

PHIL 110 Plato's Republic (3) Plato's Republic as a framework for examining philosophical issues pertaining to art, education, immortality, love, marriage, the mind, morality, the state, and the universe and our knowledge of it. The arguments Plato uses to support his views on these issues, his fusion of these views into a single comprehensive philosophy, and the influence of this philosophy on western thought and culture. Readings from other Platonic dialogues and from secondary material.

PHIL 140 Contemporary Moral Issues (3) The uses of philosophical analysis in thinking clearly about such widely debated moral issues as abortion, euthanasia, homosexuality, pornography, reverse discrimination, the death penalty, business ethics, sexual equality, and economic justice.

PHIL 143 Business Ethics (3) Introduction to ethical theories and theories of economic justice and their application to moral problems in business.

PHIL 170 Introduction to Logic (3) A general introduction to the discipline of logic. Traditional and modern deductive techniques; informal fallacies.

PHIL 173 Logic and the English Language I (3) Basic techniques for analyzing deductive arguments. The uses of these techniques to illuminate the grammar and the logic of English sentences. The capacity of the English language to express logical distinctions. Exercises in analyzing the logical structure of published writings of varied style and content.

PHIL 174 Logic and the English Language II (3) Prerequisite: PHIL 173 or permission of department. Basic techniques of conceptual analysis and nondeductive reasoning examined against the capacity of the English language for exact expression. Exercises in critical analysis of published writings of varied style and content.

PHIL 201 Issues in the Philosophy of Life (3) Philosophical issues concerning what is desirable and what is admirable in human life. The emphasis is on Western philosophy and literature.

PHIL 206 Chinese Philosophy: Social and Political Thought (3) An introductory survey of Confucian philosophy and of other Chinese social and political philosophy from ancient times to the present day. The Chou Dynasty (1122-222 BC) and the many schools of thought produced during that period. The reemergence of Confucian philosophy in the Sung Dynasty (960-1279 AD) and developments down to the contemporary period. Contemporary thought in the context of earlier Chinese traditions.

PHIL 209 Philosophical Issues (3) Repeatable to 6 credits if content differs. An examination of selected philosophical issues of general interest.

PHIL 233 Philosophy in Literature (3) Reading and philosophical criticism of fiction, poetry, and drama, dealing with issues of moral, religious, and metaphysical significance.

PHIL 236 Philosophy of Religion (3) A philosophical study of some of the main problems of religious thought: the nature of religious experience, the justification of religious belief, the conflicting claims of religion and science, and the relation between religion and morality

PHIL 243 Philosophy of Rural Life (3) An examination of traditional and contemporary rural values and philosophies of life, with an emphasis on southern agrarian philosophies. Jefferson, Emerson, Thoreau, Populism, the Country Life Movement, the Vanderbilt Agrarians, and contemporary views.

PHIL 245 Political and Social Philosophy I (3) A critical examination of such classical political theories as those of Plato, Hobbes, Locke, Rousseau, Mill, Marx, and such contemporary theories as those of Hayek, Rawls, and recent Marxist thinkers.

PHIL 250 Philosophy of Science I (3) Main issues in the philosophy of science. Special attention to the ways scientific developments have influenced the philosophy of science and how philosophy of science has influenced scientific progress. Case studies of selected historical episodes in which science and philosophy have interacted significantly, focusing on the physical, biological, or social sciences.

PHIL 271 Symbolic Logic I (3) Formerly PHIL 371. The formal analysis of deductive reasoning providing familiarity with techniques of formal deduction in propositional logic and quantification theory, as well as some knowledge of basic concepts of formal semantics (truth tables, models).

PHIL 273 Logic for Philosophy (3) Major concepts underlying the modern formal logic development by Frege and Russell and their importance in contemporary philosophy.

PHIL 308 Studies in Contemporary Philosophy (3) Prerequisite: six hours in philosophy. Repeatable to 6 credits if content differs. Problems, issues, and points of view of current interest in philosophy

PHIL 310 Ancient Philosophy (3) Prerequisite: six credits in philosophy or classics. A study of the origins and development of philosophy and science in Ancient Greece, focusing on the pre-Socratics, Socrates, Plato, and Aristotle.

PHIL 320 Modern Philosophy (3) Prerequisite: six credits in philosophy. A study of major philosophical issues of the 16th, 17th, and 18th centuries through an examination of such philosophers as Descartes, Newton, Hume, and Kant.

PHIL 326 Twentieth Century Analytic Philosophy (3) Prerequisite: six credits in philosophy. Recommended: PHIL 320. A study of major issues in twentieth century analytic philosophy through an examination of such philosophers as Frege, Russell, Carnap, Moore, and Wittgenstein.

PHIL 328 Studies in the History of Philosophy (3) Prerequisite: six hours of philosophy. Repeatable to 6 credits if content differs. Problems, issues, and points of view in the history of philosophy.

PHIL 331 Philosophy of Art (3) Prerequisite: one course in philosophy or two courses in the creative arts. Concepts central to thought about art, including the concept of the fine arts both in its historical development and in its present problematic situation.

PHIL 332 Philosophy of Beauty (3) Prerequisites: two courses in philosophy, literature, or the arts. Philosophical theories, historical and contemporary, of beauty, sublimity, and other aesthetic qualities, of aesthetic experience, and of aesthetic judgment.

PHIL 334 Philosophy of Music (3) Prerequisite: one course in philosophy or music. The nature, meaning, and purpose of music. Analysis of the concepts of creativity, form, expression, and representation as they relate to music. Theories of music listening and of musical evaluation. Readings from philosophers, composers, critics, and psychologists.

PHIL 340 Making Decisions (3) Prerequisite three credits in philosophy. An examination of various approaches to decision making in personal, professional, and public life. Conflict resolution, the logic of decision, moral aspects of decision making, and standard biases in judgment.

PHIL 341 Introduction to Ethical Theory (3) Prerequisite: one course in PHIL. Not open to students who have completed PHIL 142. Formerly PHIL 142. A critical examination of classical and contemporary systems of ethics, such as those of Anstotle, Kant, Mill, and Rawls.

PHIL 342 Moral Problems in Medicine (3) Prerequisite: PHIL 100, PHIL 140, or permission of department. A critical examination of the moral dimensions of decision-making in health related contexts. Readings are drawn from philosophical, medical, and other sources.

PHIL 344 Persons (3) Prerequisite: one course in philosophy or permission of department. Demands of moral theories on the notion of a person regarding identity, consciousness, and freedom.

PHIL 346 Introduction to Virtue Ethics (3) Ethical traditions that stress virtue and the good life, rather than moral rules and obligations. Readings in such authors as Plato, Anstotle, the Stoics, Spinzoa, and Nietzsche.

PHIL 360 Philosophy of Language (3) Prerequisite: PHIL 170, PHIL 173, or PHIL 271. An inquiry into the nature and function of language and other forms of symbolism.

PHIL 380 Philosophy of Psychology: Introduction (3) Prerequisite: one course in philosophy or permission of department. Not open to students who have completed PHIL 465. Formerly PHIL 465. Dualism, behaviorism, functionalism and basic ideas of the computational-rep resentational theory of thought.

PHIL 385 Philosophy and Computers (3) Prerequisite. one course in logic or computer science or satisfaction of junior level English composition requirement or permission of department. Philosophical issues concerning computers. Non-quantitative treatment of major results in computation theory regarding absolute limits on computers. Fundamental problems concerning computers used as models of human intelligence.

PHIL 399 Senior Seminar (3) Prerequisites: 6 courses of PHIL and permission of department. Repeatable to 6 credits if content differs. Research in selected topics, with seminar presentation and group discussion.

PHIL 408 Topics in Contemporary Philosophy (3) Prerequisite: PHIL 320. Repeatable if content differs. An intensive examination of contemporary problems and issues. Source material will be selected from recent books and articles.

PHIL 412 The Philosophy of Plato (3) Prerequisite: six credits in philosophy. A critical study of selected dialogues.

PHIL 414 The Philosophy of Aristotle (3) Prerequisite: six credits in philosophy. A critical study of selected portions of Aristotle's writings.

PHIL 416 Medieval Philosophy (3) Prerequisite: six credits in philosophy. A study of philosophical thought from the fourth to the fourteenth centuries. Readings selected from Christian, Islamic, and Jewish thinkers.

PHIL 422 The British Empiricists (3) Prerequisite: six credits in philosophy. A critical study of selected writings on one or more of the British Empiricists.

PHIL 423 The Philosophy of Kant (3) Prerequisite: six credits in philosophy. A critical study of selected portions of Kant's writings.

PHIL 427 Wittgenstein (3) Prerequisites: two courses in philosophy or permission of department. The early and late works of Wittgenstein: atomism, logic, and the picture theory in the Tractatus; roles, meaning, criteria, and the nature of mental states in the Philosophical Investigations and other posthumous writings.

PHIL 428 Topics in the History of Philosophy (3) Prerequisites: PHIL 310 and PHIL 320; or permission of department. Repeatable if content differs.

PHIL 431 Aesthetic Theory (3) Prerequisite: six credits in philosophy or permission of department. Study of the theory of the aesthetic as a mode of apprehending the world and of the theory of criticism, its conceptual tools and intellectual presuppositions.

PHIL 433 Issues in Jewish Ethics and Law (3) Prerequisite: course in philosophy or course in Jewish studies (excluding Hebrew language) or permission of department. Also offered as HEBR 451. Credit will be granted for only one of the following: PHIL 433 or HEBR 451. Philosophical and meta-legal questions concerning the nature of Jewish law and its relation to morality.

PHIL 438 Topics in Philosophical Theology (3) Prerequisite: PHIL 236 or consent of instructor. An examination of a basic issue discussed in theological writings, with readings drawn from both classical and contemporary theologians and philosophers. May be repeated to a maximum of six credits when the topics are different.

PHIL 440 Contemporary Ethical Theory (3) Prerequisite: PHIL 341. Contemporary problems having to do with the meaning of the principal concepts of ethics and with the nature of moral reasoning.

PHIL 441 History of Ethics: Hobbes to the Present (3) Prerequisite: one course in ethics. The history of ethical thought from the seventeenth century to the present, including such philosophers as Hobbes, Butler, Hume, Kant, Bentham, Mill, Bradley, Sidgwick, Moore, and Stevenson.

PHIL 442 Normative Ethical Theory (3) Prerequisite: PHIL 341. A consideration of some of the main normative ethical theories.

PHIL 446 Law, Morality, and War (3) Prerequisite: GVPT 300, GVPT 401, PHIL 341, or permission of department. Also offered as GVPT 403. An exploration of fundamental moral and legal issues concerning war.

PHIL 447 Philosophy of Law (3) Prerequisite: one course in philosophy. Examination of fundamental concepts related to law, e.g., legal systems, law and morality, justice, legal reasoning, responsibility.

PHIL 450 Scientific Thought I (3) Prerequisite: one course in philosophy or a major in science. The development of science, its philosophical interpretations and implications, and views of its methods, from the ancients through Newton and Leibniz.

PHIL 451 Scientific Thought II (3) Prerequisite: one course in philosophy or a major in science. The development of science, its philosophical interpretations and implications, and views of its methods, from the death of Newton to the early twentieth century.

PHIL 452 Philosophy of Physics (3) Prerequisite: three credits in philosophy or three credits in physics. Implications of 20th century physics for such problems as operationalism, the structure and purpose of scientific theories, the meaning of "probability", the basis of geometrical knowledge, the nature of space and time, the Copenhagen interpretation of quantum mechanics, the nature and limits of measurement. Emphasis on the interaction between physics and philosophy.

PHIL 453 Philosophy of Science II (3) Prerequisite: PHIL 250, an upper-level course in philosophy, or a major in science. A comprehensive survey of developments in the main problems of the philosophy of science from logical positivism to the present. The nature of theories, models, laws, and counterfactuals, testing, inductive logic, and confirmation theory, experimental methodology, measurement, explanation, concept formation, growth of scientific knowledge, and scientific realism.

PHIL 455 Philosophy of the Social Sciences (3) Prerequisite: PHIL 250, six hours in a social science, or permission of department. A consideration of philosophical issues arising in the social sciences, with particular emphasis on issues of practical methodological concern to social scientists.

PHIL 456 Philosophy of Biology (3) Prerequisite: PHIL 250 or permission of department. Questions about concepts, reasoning, explanation, etc., in biology, and their relations to those of other areas of science. Case studies of selected aspects of the history of biology, especially in the twentieth century.

PHIL 458 Topics in the Philosophy of Science (3) Prerequisite: PHIL 250 or permission of department, when the topic for a given semester demands, additional philosophical or scientific prerequisites may be required by the instructor. Repeatable to 6 credits if content differs. A detailed examination of a particular topic or problem in philosophy of science.

PHIL 461 Theory of Meaning (3) Prerequisite: six credits in philosophy. Theories about the meaning of linguisitic expressions, including such topics as sense and reference, intentionality and necessity, and possible-world semantics, through an examination of such writers as Mill, Frege, Wittgenstein, Quine, and Kripke.

PHIL 462 Theory of Knowledge (3) Prerequisite: six credits in philosophy. Some central topics in the theory of knowledge, such as perception, memory, knowledge, and belief, skepticism, other minds, truth, and the problems of induction.

PHIL 464 Metaphysics (3) Prerequisite: six credits in philosophy. A study of some central metaphysical concepts such as substance, identity, relations, causality, and time, and of the nature of metaphysical thinking

PHIL 466 Philosophy of Mind (3) Prerequisite: six credits in philosophy. An inquiry into the nature of mind through the analysis of such concepts as consciousness, thought, sensation, emotion, and desire. Consideration of mind-brain identity thesis.

PHIL 468 Topics in Philosophy of Language and Logic (3) Prerequisite: one course in symbolic logic or permission of department. Repeatable to 9 credits if content differs. Problems in philosophy of language and/or philosophy of logic.

PHIL 471 Symbolic Logic II (3) Prerequisite: PHIL 271 or permission of department. Axiomatic development of the propositional calculus and the first-order functional calculus, including the deduction theorem, independence of axioms, consistency, and completeness.

PHIL 472 Philosophy of Mathematics (3) Prerequisite: PHIL 271 or permission of department. A study of results in foundations of mathematics and of philosophical views of the nature of mathematics and of mathematical knowledge.

PHIL 474 Induction and Probability (3) Prerequisite: permission of department. A study of inferential forms, with emphasis on the logical structure underlying such inductive procedures as estimating and hypothesis-testing. Decision-theoretic rules relating to induction will be considered, as well as classic theories of probability and induction.

PHIL 478 Topics in Symbolic Logic (3) Prerequisite: PHIL 471. Repeatable if content differs.

PHIL 480 Philosophy of Psychology: Knowledge and Reasoning (3) Prerequisite: PHIL 380 or graduate status or permission of department. Cognitive science approaches to traditional problems in epistemology: rationality, reliability, computational models of belief revision.

PHIL 481 Philosophy of Psychology: Representation (3) Prerequisite: PHIL 380 or graduate status or permission of department. Semantics and representations within computational framework: intentionality, explicit vs. implicit representation, syntax vs. semantics of thought, connectionist approaches, images, classical vs. prototype theories of concepts.

PHIL 482 Philosophy of Psychology: Subjectivity (3) Prerequisite: PHIL 380 or graduate status or permission of department. The nature of subjectivity: problems of "point of view," the "qualities" or "feel" of things, emotions, consciousness - whether these phenomena can be captured by a computational theory of mind.

PHIL 485 Philosophy of Neuroscience (3) Prerequisite: (PHIL 250, or PHIL 380, or PHIL 455, or PHIL 456)or permission of department. Philosophical and methodological issues relating to brain science, including: the place of neuroscience in cognitive science, the nature of mental representation and processing in brains, bounded-resonance models in neuroanatomy and neurophysiology.

PHIL 487 Computer Science for Cognitive Studies (3) Also offered as LING 487. Credit will be granted for only one of the following: PHIL 487 or LING 487. List processing and discrete mathematics. Preparation for the study of artificial intelligence and other mathematically oriented branches of cognitive studies. Intended for students of linguistics, philosophy, and psychology. LISP computer language, graphs and trees, the concept of computational complexity, search algorithms.

PHIL 488 Topics in Philosophy of Cognitive Studies (3) Prerequisite: one course in philosophy or permission of department. Repeatable to 9 credits if content differs. Examination of a particular topic or problem in philosophy of cognitive studies.

PHIL 498 Topical Investigations (1-3)

PHYS — Physics

PHYS 101 Contemporary Physics (3) Prerequisite: high school algebra. Not open to students who have completed PHYS 111 or PHYS 112. For non-science students who are interested in the evolution of scientific thought and its

present day significance. Historical, philosophic, experimental and theoretical aspects of physics are presented. Topics in mechanics, relativity, electricity and magnetism, and nuclear physics are covered.

PHYS 102 Physics of Music (3) Prerequisite: high school algebra. Credit not applicable towards the minimum requirements for a major in physics and astronomy. A study of the physical basis of sound, acoustical properties of sound, the human ear and voice, reproduction of sound, electronic music, acoustical properties of auditoriums, and other selected topics.

PHYS 103 Physics of Music Laboratory (1) Two hours of laboratory per week. Pre- or corequisite: PHYS 102. Credit not applicable towards the minimum requirements for a major in physics and astronomy. Optional laboratory to accompany PHYS 102. Laboratory experiments, including the velocity of sound, sound quality and wave shape, traveling and standing waves, fourier synthesis and analysis, musical synthesizer, psychoacoustics, and audio equipment.

PHYS 106 Light, Perception, Photography, and Visual Phenomena (3) Credit not applicable towards the minimum requirements for a major in physics and astronomy. Intended for the general student, this course will cover topics in optics which require minimal use of mathematics. Principles of optics, lenses, cameras, lasers and holography, physics of the eye, color vision and various visual phenomena such as rainbows.

PHYS 107 Light, Perception, Photography and Visual Phenomena Laboratory (1) Two hours of laboratory per week. Pre- or corequisite: PHYS 106. Credit not applicable towards the minimum requirements for a major in physics and astronomy. Optional laboratory to accompany PHYS 106. Laboratory experiments include geometrical optics (lenses, cameras, eye), optical instruments (telescope, binoculars), photography, perception, color phenomena, and wave phenomena.

PHYS 111 Physics in the Modern World (3) The first semester of a survey course in general physics emphasizing the role that physics plays in science, technology, and society today. The course is concept oriented and minimal use of mathematics is made. Intended for the general student; does not satisfy the requirements of the professional schools.

PHYS 112 Physics in the Modern World (3) The second semester of a survey course in general physics emphasizing the role that physics plays in science, technology, and society today. The course is concept oriented and minimal use of mathematics is made. Intended for the general student; does not satisfy the requirements of the professional school.

PHYS 117 Introduction to Physics (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: qualification to enter MATH 110. Intended for students majoring in neither the physical nor biological sciences. A study of the development of some of the basic ideas of physical science.

PHYS 121 Fundamentals of Physics I (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: previous course work in trigonometry or MATH 115. The first part of a two-semester course in general physics treating the fields of mechanics, heat, sound, electricity, magnetism, optics, and modern physics. Together with PHYS 122, this generally satisfies the minimum requirement of medical and dental schools.

PHYS 122 Fundamentals of Physics II (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: PHYS 121 or equivalent. A continuation of PHYS 121, which together with it, generally satisfies the minimum requirement of medical and dental schools.

PHYS 141 Principles of Physics (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Corequisite: MATH 141. Credit will not be granted for PHYS 171 and PHYS 161 or PHYS 141 or former PHYS 191. The first of a two-semester series in general physics. The first semester covers the fields of mechanics, thermodynamics, and special relativity. This survey course will use calculus and is recommended for chemistry and zoology majors. It also satisfies the requirements of medical and dental schools.

PHYS 142 Principles of Physics (4) Credit will not be granted for PHYS 272 and PHYS 142 or former PHYS 192 or PHYS 262. A continuation of PHYS 141. The second semester covers the fields of waves, electricity and magnetism, optics, and modern physics.

PHYS 161 General Physics: Mechanics and Particle Dynamics (3) Three hours of lecture and one hour of discussion/recitation per week. Pre- or corequisite: MATH 141. Credit will not be granted for PHYS 171 and PHYS 161 or PHYS 141 or former PHYS 191. First semester of a three-semester calculus-based general physics course. Laws of motion, force, and energy; principles of mechanics, collisions, linear momentum, rotation, and gravitation.

PHYS 171 Introductory Physics: Mechanics (3) Prerequisite: MATH 140 and a high school physics course or permission of department. Corequisite: MATH 141. Credit will not be granted for PHYS 171 and PHYS 161 or PHYS 141 or former PHYS 191. First semester of a three semester sequence for physics majors and those desiring a rigorous preparation in the physical sciences: kinematics, Newton's laws, energy and work, linear and angular momenta, rigid bodies, gravitation and planetary motion.

PHYS 221 General Physics For Science Teachers I (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: a high school physics course. Pre- or corequisite: MATH 140 or MATH 220. The first part of a two-semester sequence in physics, stressing physical insight, for prospective secondary school science and mathematics teachers.

PHYS 222 General Physics for Science Teachers II (4) Three hours of lecture, two hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: PHYS 221. A continuation of PHYS 221.

PHYS 262 General Physics: Vibrations, Waves, Heat, Electricity and Magnetism (4) Three hours of lecture, three hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: PHYS 161. Corequisite: PHYS 262A. Credit will not be granted for PHYS 272 and PHYS 142 or former PHYS 192 or PHYS 262. Second semester of a three-semester calculus-based general physics course. Vibrations, waves, fluids; heat, kinetic theory, and thermodynamics; electrostatics, circuits, and magnetism. PHYS 262A is the lab for this course.

PHYS 263 General Physics: Electrodynamics, Light, Relativity and Modern Physics (4) Three hours of lecture, three hours of laboratory, and one hour of discussion/recitation per week. Prerequisite: PHYS 262. Corequisite: PHYS 263A. Credit will not be granted for PHYS 273 and PHYS 263 or former PHYS 293. Third semester of a three-semester calculus-based general physics course. Electrodynamics, Maxwell's equations, and electromagnetic waves; geometrical optics; interference and diffractions; special theory of relativity; and modern physics. PHYS 263A is the lab for this course.

PHYS 272 Introductory Physics: Vibrations, Waves, Heat, Fluids, Optics, Light (3) Prerequisites: PHYS 171 and MATH 141. Corequisites: PHYS 275 and (MATH 241 or MATH 240). Credit will be granted for only one of the following: PHYS 272 and PHYS 142 or former PHYS 192 or PHYS 262. Second semester of a three semester sequence intended for physics majors and those desiring a rigorous preparation in the physical sciences: vibrations, waves, heat, fluids, optics, light.

PHYS 273 Introductory Physics: Electrodynamics and Relativity (3) Prerequisites: PHYS 272, PHYS 275 and (MATH 240 or MATH 241). Corequisites: PHYS 276 and (MATH 240 or MATH 241). Credit will not be granted for PHYS 273 and PHYS 263 or former PHYS 293. Third semester of a three-semester sequence intended for physics majors and those desiring a rigorous preparation in the physical sciences: electrodynamics, Maxwell's equations, special relativity.

PHYS 275 Experimental Physics I: Mechanics and Thermodynamics (1) Prerequisite: PHYS 171 or PHYS 191. Two-three hour laboratory-lecture per week. Credit will not be granted for more than two of the following courses: PHYS275, PHYS 195, PHYS 196. First course in the three semester introductory sequence pertaining to the methods and rationale of expenmental physics. Intended for physics majors and science and engineering students who desire a more rigorous approach. Experiments chosen from the areas of classical mechanics, vibrations and waves, and thermodynamics.

PHYS 276 Experimental Physics II: Electricity and Magnetism (2) Four hours of laboratory per week. Prerequisites: PHYS 272 and PHYS 275. Credit will be granted for only one of the following: PHYS 276 or former PHYS 295. Second course in the three semester introductory sequence. Methods and rationale of expenmental physics. Experiments chosen from the fields of electricity and magnetism including electrostatics, magnetostatics, magnetic induction, AC circuits.

PHYS 299 Special Problems in Physics (1-6) Prerequisite: permission of department. May be taken no more than twice. Maximum of eight credits applicable to B.S. degree program. Research or special study to complement courses taken elsewhere which are not fully equivalent to those in departmental requirements. Credit according to work done.

PHYS 301 Intermediate Theoretical Physics (3) Prerequisite: PHYS 142 and MATH 241. Students interested should seek advice of department before enrolling. Intended for those not yet prepared for PHYS 410. Selected topics in mechanics, electricity and magnetism.

PHYS 305 Physics Shop Techniques (1) Three hours of laboratory per week. Prerequisite: PHYS 395 or permission of department. Machine tools, design and construction of laboratory equipment.

PHYS 318 Topics in Contemporary Physics (3) Prerequisite: PHYS 122 and/or PHYS 112 or permission of department. A survey of topics of current research and public interest. Intended for the non-physics or non-science major. Topics covered will include lasers, quantum liquids, cosmology, elementary particles and geophysics.

PHYS 375 Experimental Physics III: Electromagnetic Waves, Optics and Modern Physics (2) Four hours of laboratory per week. Prerequisites: PHYS 273 and PHYS 276. Credit will be granted for only one of the following: PHYS 375 or former PHYS 296. Third course in the three-semester introductory sequence. Methods and rationale of experimental physics. Expenments chosen from the areas of electromagnetic waves, optics and modern physics.

PHYS 389 Undergraduate Thesis Research (1-6) Prerequisite: permission of department. For PHYS majors only. Repeatable to 6 credits. Independent directed research and study on a topic selected by the student in consultation with his or her advisor. Final written thesis and oral defense will be expected.

PHYS 395 Advanced Experiments (3) Prerequisite: PHYS 375. For PHYS majors only. Advanced laboratory techniques. Selected experiments from many fields of modern physics. Emphasis on self-study of the phenomena, data analysis, and presentation in report form.

PHYS 398 Independent Studies Seminar (1-16) Credit according to work done. Enrollment is limited to students admitted to the independent studies program in physics.

PHYS 399 Special Problems in Physics (1-3) Two hours laboratory work per week for each credit. Prerequisite: PHYS 395 and permission of department. One to three credits may be taken concurrently each semester. Selected advanced experiments. (Will be given with sufficient demand.)

PHYS 406 Optics (3) Prerequisite: (PHYS 263 or PHYS 273 or PHYS 301); and MATH 240. Geometrical optics, optical instruments, wave motion, interference and diffraction, and other phenomena in physical optics.

PHYS 407 Sound (3) Prerequisite: PHYS 142 or PHYS 263 or PHYS 273. Pre- or corequisite: MATH 246. Basic concepts of sound production and its applications.

PHYS 410 Elements of Theoretical Physics: Mechanics (4) Prerequisite: (PHYS 263 or PHYS 273 or PHYS 301); and MATH 241. Corequisite: MATH 240. Theoretical foundations of mechanics with extensive application of the methods. Various mathematical tools of theoretical physics.

PHYS 411 Elements of Theoretical Physics: Electricity and Magnetism (4) Prerequisite: (PHYS 263 or PHYS 273 or PHYS 301), and MATH 240 and MATH 241. Foundations of electromagnetic theory, with extensive applications of the methods. Thorough treatment of wave properties of solutions of Maxwell's equations

PHYS 412 Kinetic Theory of Gases (3) Prerequisite: PHYS 301 or PHYS 410; and MATH 240. Dynamics of gas particles, Maxwell-Boltzmann distribution, diffusion, Brownian motion, transport

PHYS 414 Introduction to Thermodynamics and Statistical Mechanics (3) Prerequisite: (PHYS 263 or PHYS 273 or PHYS 301); and MATH 240. Introduction to basic concepts in thermodynamics and statistical mechanics.

PHYS 420 Principles of Modern Physics (3) Prerequisite (PHYS 263 or PHYS 273 or PHYS 301); and MATH 241. Credit will be granted for only one of the following: PHYS 420 or PHYS 421. A survey of atomic and nuclear phenomena and the main trends in modern physics. Appropriate for students in engineering and other physical sciences.

PHYS 421 Introduction to Modern Physics (3) Prerequisite: (PHYS 263 or PHYS 273 or PHYS 301); and MATH 241, including some knowledge of ordinary equations. Credit will be granted for only one of the following: PHYS 420 or PHYS 421. Special relativity and origins of the quantum theory. Development of wave mechanics including angular momentum and the hydrogen spectrum.

PHYS 422 Modern Physics (4) Prerequisite: PHYS 421. Use of quantum mechanics in a discussion of a variety of physical phenomena and systems, including atomic spectra, radioactivity, solid state phenomena, and the properties of elementary particles.

PHYS 429 Atomic and Nuclear Physics Laboratory (3) Prerequisite: PHYS 395. Classical experiments in atomic physics and more sophisticated experiments in current techniques in nuclear physics.

PHYS 431 Properties of Matter (3) Prerequisite: PHYS 301; or (PHYS 410 or PHYS 411); and (PHYS 420 or PHYS 421). Introduction to solid state physics. Electro-magnetic, thermal, and elastic properties of metals, semiconductors, insulators and superconductors.

PHYS 441 Nuclear Physics (3) Prerequisite: PHYS 301; or (PHYS 410 and PHYS 411); and (PHYS 420 or PHYS 421). An introduction to nuclear physics at the pre-quantum-mechanics level. Properties of nuclei; radioactivity; nuclear systematics; nuclear moment; the Shell model, interaction of charged particles and gamma rays with matter; nuclear detectors; accelerators; nuclear reactions; beta decay; high energy phenomena.

PHYS 443 Neutron Reactor Physics (3) Prerequisite: PHYS 420 or PHYS 421 or consent of instructor. Various related topics in neutron reactor physics.

PHYS 451 Introduction to Elementary Particles (3) Prerequisite: PHYS 422. Properties of elementary particles, production and detection of particles, relativistic kinematics, invariance principles and conservation laws.

PHYS 461 Introduction to Fluid Dynamics (3) Prerequisite: PHYS 301 or PHYS 410; and MATH 240. Kinematics of fluid flow, properties of incompressible fluids, complex variable methods of analysis, wave motions.

PHYS 463 Introduction to Plasma Physics (3) Prerequisite: PHYS 301; or (PHYS 410 and PHYS 411); or (ENES 221 and ENEE 380). Students without the electricity and magnetism prerequisite, but having a familiarity with Maxwell's equations, should check with the instructor. Orbit theory, magneto-hydrodynamics, plasma heating and stability, waves and transport processes.

PHYS 465 Modern Optics (3) Prerequisite: PHYS 410; and PHYS 411; and PHYS 420 or PHYS 421. Designed for students with a background in fundamental optics. Topics in modern optics such as coherence, holography, principles of laser action, electron optics, and non-linear optics.

PHYS 471 Introduction to Atmospheric and Space Physics (3) Prerequisite: PHYS 301; or (PHYS 410 and PHYS 411); and (PHYS 420 or PHYS 421). Motions of charged particles in magnetic fields, aspects of plasma physics related to cosmic rays and radiation belts, atomic phenomena in the atmosphere, thermodynamics and dynamics of the atmosphere.

PHYS 483 Biophysics and Theoretical Biology (3) Designed for advanced and mature students who may have only minimal knowledge of biological processes but are well grounded in physics. Areas in bioscience where physics, biophysical chemistry, and mathematical analysis fuse to provide definition for biologic statics and dynamics.

PHYS 485 Electronic Circuits (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: PHYS 395. Corequisite: PHYS 301 or PHYS 411. Theory and application to experimental physics of modern semiconductor analog and digital circuits. Emphasis on understanding passive and active elements in practical circuits. Topics span the range from simple transistor circuits to microcomputers.

PHYS 487 Particle Accelerators, Physical and Engineering Principles (3) Prerequisites: PHYS 410; and PHYS 411; and PHYS 420 or PHYS 421. Also offered as ENEE 487. Sources of charged particles; methods of acceleration and focusing of electron and ion beams in electromagnetic fields; basic theory, design, and engineering principles of particle accelerators.

PHYS 490 History of Modern Physics (3) Prerequisite: PHYS 420 or PHYS 421 or equivalent. Primarily for senior physics majors and first year graduate students. A survey of major discoveries and trends in 20th century physics, including the relations of physics to other sciences, philosophy of science, technology and society.

PHYS 499 Special Problems in Physics (1-16) For PHYS majors only. Research or special study. Credit according to work done.

PORT — Portuguese

PORT 101 Elementary Portuguese (4) One hour of laboratory and four hours of discussion/recitation per week. Introduction to basic structures, with emphasis upon audio-lingual skills. Leads to PORT 102.

PORT 102 Elementary Portuguese (4) One hour of laboratory and four hours of discussion/recitation per week. Prerequisite: PORT 101. Completion of basic structures with increasing emphasis upon reading skill, reinforced by conversation.

PORT 121 Accelerated Portuguese (3) One hour of laboratory and three hours of discussion/recitation per week. Limited to students who have reached the 300 level or equivalent in Spanish and wish to acquire a reading knowledge of Portuguese in one semester. Normally leads to PORT 221.

PORT 203 Intermediate Portuguese (4) One hour of laboratory and four hours of discussion/recitation per week. Prerequisite: PORT 102. Extensive reading, conversation and composition.

PORT 205 Intermediate Conversation (3) Prerequisite: PORT 203 or permission of department. Development of oral skills in Portuguese. Intensive conversation on contemporary issues.

PORT 220 Introduction to Portuguese Literature (3) Prerequisite: PORT 205. Readings from the main literary figures, texts and movements of Portuguese literature.

PORT 221 Introduction to Brazilian Literature (3) Prerequisite: PORT 203. Reading of literary texts, discussion and brief written reports. Conducted in Portuguese.

PORT 223 Portuguese Culture (3) Political, social, intellectual, and literary forces shaping culture of contemporary Portugal from the formation of the country to the present. In English.

PORT 224 Brazilian Culture (3) Pluralistic formation of Brazilian culture, based on European, African and Indian contributions. Lectures, discussions, slides, video, and film presentations. In English.

PORT 225 The Cultures of Portuguese-Speaking Africa (3) Cultures of the Portuguese speaking countries of Angola, Cape Verde, SaoTome e Principe, Guinea-Bissau and Mozambique. Special attention to the development of national cultures in multicultural societies and to the role of women. Conducted in English.

PORT 322 African Literature of Portuguese Expression (3) Prerequisite: PORT 203. Recommended: PORT 205 and PORT 225. Representative literary texts (poetry, essay and fiction) from the African nations of Angola, Mozambique, Cape Verde, Guinea-Bissau and Sao Tome e Principe including discussion of acculturated literary discourse, role of literature in the development of national consciousness and use of oral tradition.

PORT 350 History of the Portuguese Language (3) Prerequisite: (PORT 220 or PORT 221) or permission of department. Evolution of the Portuguese language from its formation to present days; differences between Continental, African and Brazilian usages.

PORT 399 Independent Study in Portuguese (1-3) Prerequisite: permission of department. Repeatable to 3 credits. Specific readings in literature under the supervision of a faculty member of the department.

PORT 408 Special Topics in Portuguese Literature (3) Prerequisite: PORT 221. Repeatable to 6 credits if content differs. Major themes and literary developments from the late 18th century to the present.

PORT 422 Cross-Cultural Approaches to Contemporary Luso-Brazilian Societies (3) Prerequisites: (PORT 205 or permission of department) and (PORT 223 or PORT 224 or PORT 225). Analysis of cross-cultural interactions in international business in contemporary Luso-Brazilian societies.

PORT 470 Modernism in Brazilian Prose Fiction (3) Prerequisite: permission of department. Prose of the Modernist movement in Brazil from 1922, including literary, sociological and historical dimensions.

PORT 478 Themes and Movements of Luso-Brazilian Literature In Translation (3) Repeatable to 6 credits if content differs. A study of specific themes and movements either in Portuguese or Brazilian literature, as announced. Designed for students for whom the literatures would be inaccessible in Portuguese.

PORT 480 Machado de Assis (3) Prerequisite: permission of department. Fiction of Machado de Assis covering his romantic and realistic periods.

PSYC — Psychology

The following courses may involve the use of animals. Students who are concerned about the use of animals in teaching have the responsibility to contact the instructor, prior to course enrollment, to determine whether animals are to be used in the course, whether class exercises involving animals are optional or required and what alternatives, if any, are available.

PSYC 100 Introduction to Psychology (3) A basic introductory course, intended to bring the student into contact with the major problems confronting psychology and the more important attempts at their solution.

PSYC 200 Statistical Methods in Psychology (3) Prerequisite: PSYC 100; and MATH 111 or MATH 140 or MATH 220. A basic introduction to quantitative methods used in psychological research.

PSYC 206 Developmental Biopsychology (3) Prerequisite: PSYC 100. Biological basis of behavioral development in relation to genetic, constitutional, anatomical, physiological, and environmental factors. Emphasis upon both phylogenetic and ontogenetic research findings in biological psychology.

PSYC 221 Social Psychology (3) Prerequisite: PSYC 100. The influence of social factors on the individual and on interpersonal behavior. Includes topics such as conformity, attitude change, person perception, interpersonal attraction and group behavior.

PSYC 235 Psychology of Adjustment (3) Prerequisite: PSYC 100. Theory and research on the psychology of personal adjustment in everyday life, with an emphasis on self-concept, emotions, self-control, interpersonal relations, and stress.

PSYC 300 Introduction to Methods of Psychological Research - Honors (3) Prerequisite: PSYC 200 and permission of the Honors Program Director. Formerly PSYC 201. Various methods of inquiry in psychology; research questions, differences between correlational and experimental research, what to observe, how to measure observations, the role of theory in psychological research, and the interface between ethics and methodology. Observations of on-going research projects will be required.

PSYC 301 Biological Basis of Behavior (3) Prerequisite: PSYC 100. The experimental analysis of the behavior of humans and animals and underlying biological mechanisms. Topics such as genetic determiners and physiological mechanisms, and basic principles of conditioning and learning.

PSYC 309 Special Topics in Psychology (3) Prerequisite: PSYC 100. Repeatable to 6 credits if content differs. Topics of current interest which represent extensions of or additions to topics covered in more general topical courses.

PSYC 310 Perception (3) Prerequisite: PSYC 100 or permission of department. Not open to students who have completed PSYC 410. A survey of phenomena and theories of perception including psychological, anatomical, physiological, and environmental factors important in determining how we perceive the world. Historical background will be examined as well as contemporary research.

PSYC 330 Child Psychopathology (3) Prerequisite: PSYC 100; and PSYC 355 or equivalent. Etiology, diagnosis, prevention and treatment of emotional disorders of childhood and adolescence.

PSYC 332 Psychology of Human Sexuality (3) Prerequisite: PSYC 100. A survey of historical and contemporary psychological views on a wide variety of sexual behaviors; theory and research bearing on the relationship between life span psychological development, psychological functioning, interpersonal processes and sexual behaviors; political and social issues involved in current sexual norms and practices.

PSYC 334 Psychology of Interpersonal Relationships (3) Prerequisite: PSYC 100. Research, theory and their practical applications pertaining to the development, maintenance and dissolution of human relationships. Processes critical to successful relating (e.g. communication, bargaining, conflict relations), and issues associated with troubled dyadic relations with equal partners (e.g. jealousy, spouse abuse, divorce).

PSYC 336 Psychology of Women (3) Prerequisite: PSYC 100. A survey of the biology, life-span development, socialization, personality, mental health, and special issues of women.

PSYC 337 Introduction to Community Psychology (3) Prerequisite: PSYC 100. Survey and critical examination of the effects of social process and social structure in community life on individual mental health. Includes theoretical models in community psychology.

PSYC 341 Introduction to Memory and Cognition (3) Prerequisite: PSYC 100. An introduction to the basic models, methods of research and findings in memory, problem-solving, and language and their applications.

PSYC 353 Adult Psychopathology (3) Prerequisite: PSYC 100. Credit will be granted for only one of the following: PSYC 353 and PSYC 331 or PSYC 431. The nature, diagnosis, etiology and treatment of mental disorders among adults.

PSYC 354 Cross-Cultural Psychology (3) Prerequisite: PSYC 100 plus 3 credits in psychology or permission of department. Cultural components in theory and research in personality, social and community psychology. Interplay of individual, ethnic and cultural factors in psychosocial growth and well-being, cross-cultural and cross-ethnic communication, and counseling and psychotherapeutic interactions.

PSYC 355 Child Psychology (3) Prerequisite: PSYC 100. Not open to students who have completed PSYC 333 or PSYC 433. Survey of research and theory of psychological development from conception through childhood, stressing physiological, conceptual and behavioral changes and the social and biological context in which individuals develop.

PSYC 356 Psychology of Adolescence (3) Prerequisite: PSYC 355 or permission of department. A description of adolescent development based on research and theory interrelating psychological, intellectual, and social changes during the teen years and the systems dealing with those changes.

PSYC 357 Psychology of Adulthood and Aging (3) Prerequisite: PSYC 100. Theory, research and implications of developmental stability and change in physiological, intellectual and interpersonal functioning in the social context from early adulthood through the aging years.

PSYC 361 Survey of Industrial and Organizational Psychology (3) Prerequisite: PSYC 100. A general survey of the field of industrial organizational psychology including such topics as organizational entry (recruitment, selection, training, socialization), organizational psychology (motivation, leadership, job attitudes), and productivity in the work place (performance appraisal, absenteeism, turnover). The role that the larger environment plays in influencing work behaviors and work attitudes.

PSYC 400 Experimental Psychology: Learning and Motivation (4) Two hours of lecture and four hours of laboratory per week. Prerequisites: PSYC 200; completion of the departmentally required English, math and science supporting course sequence; and permission of department. The experimental analysis of behavior, with emphasis on conditioning, learning and motivational processes. Experiments on the behavior of animals.

PSYC 402 Physiological Psychology (3) Prerequisite: PSYC 206 or PSYC 301. Credit will be granted for only one of the following: ZOOL 323 or PSYC 402. Research on the physiological basis of human behavior, including considerations of sensory phenomena, motor coordination, emotion, drives, and the neurological basis of learning.

PSYC 403 Animal Behavior (3) Prerequisite: PSYC 206 or PYSC 301. Social interactions, learning, sensory processes, motivation, and experimental methods, with a major emphasis on mammals.

PSYC 404 Introduction to Behavioral Pharmacology (3) Prerequisites: PSYC 200 and (PSYC 206 or PSYC 301 or PSYC 400). Theoretical viewpoints on the interaction of drugs and behavior. Basic principles of pharmacology, the effects of drugs on various behavior, experimental analysis of drug dependence and abuse, and neuropharmacology and behavior.

PSYC 405 Applied Behavior Analysis (3) Prerequisites: PSYC 200 and PSYC 301. Research literature in the application of operant and respondent conditioning principles to human behavior. Approaches to behavior problems in school, home and professional settings.

PSYC 410 Experimental Psychology: Sensory Processes I (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: PSYC 200; and completion of the English, math and science supporting course sequence; and permission of department. A student who has completed PSYC 310 must have permission of the instructor in order to register for PSYC 410. A systematic survey of the content, models, and methodology of sensory and perceptual research.

PSYC 415 History of Psychology (3) Prerequisite: twelve credits in psychology including PSYC 200 or permission of department. Origins of psychology in philosophy and biology, and the development of psychology as a science in the nineteenth and twentieth centuries. Consideration of current theoretical perspectives and experiments in relation to the enduring problems of psychology, and of the role of culture, science, and technology in the development of psychological ideas.

PSYC 420 Experimental Psychology: Social Processes I (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: PSYC 200; and PSYC 221; and completion of the departmentally required English, math, and science supporting course sequence; and permission of department. A laboratory course to provide a basic understanding of experimental method in social psychology and experience in conducting research on social processes.

PSYC 421 Experimental Psychology: Social Processes II (4) Prerequisite: PSYC 420. Two hours of lecture and four hours of laboratory per week. An advanced laboratory course providing intensive training in experimental work in social psychology and the opportunity to design and carry out original research on social processes.

PSYC 423 Advanced Social Psychology (3) Prerequisite: PSYC 420, or permission of department. A systematic review of research and points of view in regard to major problems in the field of social psychology.

PSYC 424 Communication and Persuasion (3) Prerequisites: PSYC 200; and PSYC 221. Effect of social communication upon behavior and attitudes. Theory and research concerning attitude change and social influence.

PSYC 432 Introduction to Counseling Psychology (3) Prerequisite: nine hours in psychology including PSYC 200. Analysis of research and intervention strategies developed and used by counseling psychologists. Historical and current trends in content and methodology.

PSYC 433 Analysis of Helping Relationships (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: PSYC 200; (and PSYC 235 or PSYC 334 or PSYC 435 or PSYC 432). Theories and research strategies regarding effective helping relationships. Basic components of helping relationships and how to conduct a research project evaluating helping behavior and its impact on others.

PSYC 435 Personality Theories (3) Prerequisite: PSYC 100; and PSYC 200 or equivalent. Major theories of personality and research methods and findings relevant to those theories.

PSYC 436 Introduction to Clinical Psychology (3) Prerequisite: PSYC 200 or equivalent. Critical analysis of clinical psychology, with particular emphasis on current developments and trends.

PSYC 440 Experimental Psychology: Cognitive Processes (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: PSYC 100; and PSYC 200 or a statistics course from an approved departmental list; and completion of the departmentally required English, math and science supporting course sequence; and permission of department. A survey of the content, models, and methods in cognitive psychology with an emphasis on auditory and visual pattern recognition, information processing, attention, memory, learning, problem solving, and language.

PSYC 442 Psychology of Language (3) Prerequisite: PSYC 200; and PSYC 341 or PSYC 440, or permission of department. Introductory survey of topics in psycholinguistic research, theory and methodology. Major emphasis on the contribution of linguistic theory to the psychological study of language behavior and cognition. Linguistic theory, biological bases of language, and speech, grammars, phonetics and phonological performance, speech perception and production, psychological studies of syntax and semantics, language and cognitive development, language comprehension and thought.

PSYC 443 Thinking and Problem Solving (3) Prerequisites: PSYC 200; and (PSYC 341 or PSYC 440) or permission of department. Historical development, current theory and data, and research methods in problem solving. Formal problem solving theory and computer models of thinking and human problem-solving behavior. The uses of strategies to improve students' own thinking processes and problem-solving behavior.

PSYC 444 Cognitive Structure in Perception (3) Prerequisite: PSYC 200; and (PSYC 341 or PSYC 440) or permission of department. Perception as an information extraction and pattern recognition process. Complex form and space perception and pattern recognition of speech. Review of early studies of form and pattern perception which support information processing state or cascade models of perceptual capacities; studies on development and the roles of learning and attention.

PSYC 450 Field Research in Organizational Psychology (4) Two hours of lecture and two hours of laboratory per week. Prerequisites: PSYC 100, PSYC 200 and completion of required English, math, science sequence. Recommended: PSYC 361. For PSYC majors only. Methods of field research applicable to organizational settings are examined, including field experiments and quasi-experiments, observation, interviewing, surveys, content analysis, and various forms of qualitative inquiry

PSYC 451 Principles of Psychological Testing (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: PSYC 200. A survey of the basic concepts and theories of psychological measurement illustrated through demonstration of principal approaches to psychological testing

PSYC 452 Psychology of Individual Differences (3) Prerequisite: PSYC 200. Problems, theories and research related to psychological differences among individuals and groups.

PSYC 453 Mathematical Psychology (3) Prerequisite: PSYC 200 or equivalent, and permission of department. A survey of mathematical formulations in psychology, including measurement and scaling models, statistical and psychometric models, and elementary mathematical representations of psychological processes in learning, choice, psychophysics, and social behavior.

PSYC 455 Life-Span Cognitive Development (3) Prerequisites: PSYC 200 and (PSYC 355 or PSYC 341 or PSYC 440). Theory and research in cognition from a life-span developmental perspective including memory, reasoning, attention, spatial, cognition and conceptual organization and discussions of implications of current research for a variety of educational interventions.

PSYC 456 Research Methods in Developmental Psychology (3) Prerequisites: PSYC 200 and (PSYC 355 or PSYC 356 or PSYC 357). A presentation of major research designs used in developmental psychology and of the methodology used in developmental research, such as observational research, program evaluation and laboratory experimentation.

PSYC 457 Cultural Context of Psychological Development (3) Prerequisite: (PSYC 355, or PSYC 356, or PSYC 357,) or permission of department. An examination of whether important differences or similarities exist among and within cultures in the way people develop psychological competencies in the period from birth through adolescence.

PSYC 458 Applied Developmental Psychology (3) Prerequisite: PSYC 200 and (PSYC 355, or PSYC 356, or PSYC 357). Repeatable to 6 credits if content differs. An examination of a topic in developmental psychology which has been examined in the laboratory and is central to developmental theories. Extension of these analyses to practical and social issues in the daily life of the developing individual. Topics will vary from semester to semester.

PSYC 460 Psychological Foundations of Personnel Selection and Training (3) Prerequisite: PSYC 200 or equivalent. An examination of issues and processes involved in the design and evaluation of personnel selection and training programs in a variety of organizational settings: job, person and organizational analysis; organizational choice; development of predictors; evaluation of instructional and training systems; criteria for performance evaluation, promotion and training.

PSYC 462 Engineering Psychology and Training Models (3) Prerequisite: PSYC 200 or equivalent; and PSYC 361 or permission of department. For PSYC majors only. An examination of theories and research regarding human performance capabilities and skills (information processing, decision-making, environmental constraints, automation), training procedures (traditional methods, programmed learning, computer-assisted instruction) and models and procedures for evaluating training programs in industry, education, and service organizations.

PSYC 463 Psychology of Motivation and Attitudes in Organizational Settings (3) Prerequisites: PSYC 200 and PSYC 361. Theories, research and practice regarding the assessment, understanding, and prediction of motivation at work. Theories of, and the assessment and consequences of, various work-related attitudes. An integration of theory, research and practice.

PSYC 464 Psychology of Leaders in Work Organizations (3) Prerequisite: PSYC 361 or equivalent. The psychological assumptions and implications of various theories of management and leadership. Selections and training; development of careers; influence processes; change of managerial behavior; and the impact of the larger environment, nature of product or service, and organization structure on managerial behavior.

PSYC 465 Psychology of Organizational Processes (3) Prerequisites: PSYC 200 and PSYC 361 or their equivalents. Theories of interpersonal, intra- and inter-group relations, with emphasis on issues of conflict, competition, cooperation and the role of power in organizations. Organizational diagnosis and intervention.

PSYC 466 Environmental and Ecological Psychology (3) Prerequisite: PSYC 200. An examination of measurement, description, and impact of the physical and social environments that affect various aspects of behavior in school, at work, and during leisure.

PSYC 468 Field Experience and Special Assignments in Honors (1-3) Prerequisite: permission of department as well as supervisor and honors faculty. Repeatable to 6 credits. An individual experience arranged by the honors student and his or her supervisor. A proposal submitted to the honors faculty in the semester preceding registration for the course should state the activities anticipated and the method of evaluation.

PSYC 469 Honors Thesis Proposal Preparation (1-3) Prerequisite: Honors thesis supervisor's approval. Repeatable to 3 credits. Development of honors thesis proposal by preliminary research and literature review. Presentation of formal proposal to the thesis committee.

PSYC 478 Independent Study in Psychology (1-3) Prerequisite: permission of both department and instructor in the form of a written agreement signed by the student and the faculty mentor. The student must have completed 9 hours in psychology with at least a 3.0 G.P.A. in psychology and a 2.8 overall G.P.A. Students may not accumulate more than a total of 9 credits in PSYC 478 and PSYC 479 without permission of the Chair of the Department of Psychology or the Psychology Undergraduate Committee psychology or the Psychology Undergraduate Committee. Integrated reading under direction leading to the preparation of an adequately documented report on a special topic.

PSYC 479 Special Research Problems in Psychology (1-3) Prerequisite: permission of both department and instructor in the form of a written agreement signed by the student and the faculty mentor. The student must have completed 9 hours in psychology with at least a 3.0 G.P.A. in psychology and a 2.8 overall G.P.A. Repeatable to a maximum or 9 credits unless there is a waiver from the Psychology Undergraduate Committee. Research and data collection under individual faculty supervision, leading to a written research report.

PSYC 488 Advanced Psychology I (Honors) (3) Prerequisite: PSYC 200 and permission of department. Seminar covering topics in sensation, perception, learning, and motivation.

PSYC 489 Senior Seminar (3) Prerequisite: PSYC 100. Treatment of a specialized topic in psychology.

PSYC 498 Advanced Psychology II (Honors) (3) Prerequisite: PSYC 488H or permission of department. Seminar covering topics in measurement, social processes, developmental processes and other subject matter of current interest.

PSYC 499 Honors Thesis Research (3) Prerequisite: PSYC 469 and permission of thesis advisor.

RECR — Recreation

RECR 130 Recreation and Leisure (3) The study of recreation and leisure behavior, including concepts, theories and terminology. Psychological, social psychological and sociological factors that affect recreation and leisure behavior throughout the lifespan. Analysis of recreation and leisure behavior in our changing society.

RECR 150 Camp Counseling (2) A study of the philosophy and techniques of camp counseling including the qualifications, responsibilities and skills involved; the basic organization, administration and program planning practices and problems of camping as a whole; the relationship of these practices and problems to the counselor and his or her probable success. Outdoor skills will be taught and practiced insofar as possible with field trips included.

RECR 200 Sophomore Seminar (1) Prerequisite: permission of department. Discussion, observation, analysis and assessment of a number of possible placements under various jurisdictions, with a number of age groupings, in different settings, with diverse facilities and programs for their activity leadership role in sophomore summer field work practicum. Work in the field with supervisors to identify strategies and problems and to develop materials appropriate to the interviewing and placement process.

RECR 220 Methods and Materials in Recreation (3) Two hours of lecture and three hours of laboratory per week. Roles, duties and responsibilities of the recreation activity leader. Practical experience in planning, organizing, leading, participating and evaluating a wide variety of recreation activities.

RECR 270 Leisure Services and Special Populations (3) Leisure services programming for special populations (physically disabled, mentally retarded, visually impaired, hearing impaired, law offenders, psychologically disabled, and aged). Emphasis on integration of special populations into the mainstream of leisure services, including history, legislation and population characteristics.

RECR 271 Implications of Disabling Conditions For Therapeutic Recreation (3) Etiology, symptomatology and characteristics of disabling conditions and their implications for therapeutic recreation interventions in clinical and non-clinical settings. Orientation to health-related disciplines and appropriate terminology.

RECR 300 Senior Seminar (1) Prerequisite: permission of department. Review and evaluation of academic and other professional preparation, analysis of future plans, and final preparation for entry into the recreation profession.

RECR 325 General Fundamentals of Recreation (3) This course is designed for and limited to students not majoring in recreation who wish to develop some understanding of the place, importance and potentialities of recreation in modern life. Included will be limited study of the areas of philosophy, program planning, leadership techniques, organization and administration, and interrelationships with other fields.

RECR 335 Recreation and Leisure (3) Introduction to the study of leisure or park and recreation services. The challenges, opportunities, and problems of leisure as it affects individuals' lives and the social fabric of their local, national and world communities.

RECR 337 Social Psychological Foundations of Leisure (3) The basic social psychological principles and processes underlying human behavior are explored and applied to understanding leisure behavior and problems. This course examines how one's cognitions about leisure influence and are influenced by other's leisure cognitions and social leisure behavior.

RECR 340 Field Work I (6) Prerequisites: RECR 200; and permission of department. Practical field experience in developing recreation activity leadership skills at an organized recreation department or agency. Students will be expected to make a commitment for a minimum of eight weeks or equivalent.

RECR 341 Field Work II (8) Prerequisites: RECR 300; and permission of department. Observation and field work placement selected and assigned on the basis of the student's interest and future employment plans. Leadership activity and participation in staff activities and responsibilities.

RECR 350 Recreational Use of Natural Areas (3) An introductory orientation to the outdoor recreation phenomenon. Factors stimulating outdoor recreation involvement; federal, state, local, public, and private departments and agencies managing outdoor recreation areas; legislation; philosophical concepts, planning and management issues.

RECR 351 Nature Interpretation (3) Principles and techniques used for interpretation of environmental, natural, historic and other features of recreation and parks facilities to the visitor. Individual and group field trips will be required.

RECR 375 Principles of Therapeutic Recreation (3) Prerequisite: RECR 271. History, philosophy, and current principles of therapeutic recreation processes and application.

RECR 376 Case Study Laboratory (1) Pre- or corequisite: RECR 375. An applied experience where students develop and carry out an individualized intervention plan in an approved therapeutic recreation setting. Consists of one hour class per week in addition to weekly work in the therapeutic recreation setting.

RECR 389 Topical Investigations (1-3) Repeatable to 6 credits. Independent study by an individual student or a group of students in special areas of knowledge not covered by regularly scheduled courses.

RECR 410 Measurement and Evaluation in Recreation (3) Prerequisite: RECR 130; or permission of department. A survey course in measurement tools and methods and application of measurement to evaluative processes applicable in specific and broad areas of interest and specialization in recreation and parks.

RECR 420 Program Planning and Analysis (3) Prerequisite: RECR 130; or RECR 325. Recommended: RECR 220. The essential elements and basic principles involved in the organization and administration of various types of recreation programs with emphasis on the development of practical, comprehensive program plans and evaluations for a population and a facility within the student's particular area of interest.

RECR 421 Campus Leisure Services Programming (3) An introduction to the various elements of campus leisure services program development. Intramurals, clubs and organizations as well as an analysis of the campus union as a key in the college/university community activity effort.

RECR 426 Industrial Employee Recreation (3) Prerequisites: RECR 130 or RECR 335. An introductory study of the philosophy of and practices and problems in industrial recreation. Where possible the course will include opportunities for observation and for meeting visiting specialists.

RECR 432 Philosophy of Recreation (3) A study of the meanings, relationships, and services of recreation as expressed by past and present authorities and leaders. This course should be of interest to people active in education, social work, and related fields.

RECR 440 Leisure Services for the Aging (3) Prerequisite: RECR 130. Theory and practice in program development of services for the aging. Emphasis on: (1) needs assessment theory and practice; (2) program development; (3) evaluation theory and practice; (4) leisure service settings for the aging; and, (5) issues confronting providers of services to the aging population.

RECR 450 Camp Management (3) Prerequisite: RECR 150; or permission of department. An advanced camping course for those students with previous training and experience; organization, administration, programming, current trends, evaluation, and special problems. Whenever possible, visiting specialists and field trips will be included.

RECR 454 Outdoor Education (3) Field experience and resident camping in an outdoor setting will be used to present the activities and techniques recommended for modern outdoor education practice. Where possible groups of participants will be utilized as subjects for practice instructional work. Activity will emphasize not only the subject matter of science and education but also the broad concepts of conservation, worthy use of leisure time, education for democratic living, etc.

RECR 457 Concepts and Issues in Outdoor Recreation (3) A survey of the relationships between land, leisure and people as increasingly vital and interdependent issues in American civilization. The mainstream of thoughts, methods and policies of resource based recreation, with special attention to the history of conservation and the significance of wilderness.

RECR 460 Leadership Techniques and Practices (3) Prerequisite: RECR 130. Various types and dynamics of recreation leadership at academic, agency, small and large group levels. Acquisition of tangible techniques, such as goal setting, decision making, and leadership for purposes of organizing, implementing, observing and analyzing human function in organizational settings.

RECR 463 Supervisory Techniques in Recreation (3) Prerequisite: RECR 130; or RECR 325; or RECR 335. A study of the principles, methods, techniques as well as an analysis of the functions of supervision in the recreation and parks environment. This course is designed to advance the student's understanding of the art of building human relationships, and to apply the emerging concepts and principles of modern supervision to practical situations in which administrators, supervisors, leaders (both professional and paraprofessional) and volunteers are working.

RECR 475 Problems in Therapeutic Recreation (3) Prerequisite: RECR 375. Problems encountered in the delivery of therapeutic recreation services to individuals with special problems. Current trends, innovative service delivery models, literature review, and identification of funding sources.

RECR 489 Field Laboratory Projects and Workshop (1-6) A course designed to meet the needs of persons in the field with respect to workshops and research projects in special areas of knowledge not covered by regularly structured courses.

RECR 490 Organization and Administration of Recreation (3) A study of the organizational patterns and administrative problems involved in the various types of operating recreation departments and agencies; forms of organization; finance and budget; personnel; public relations.

RECR 493 Tourism and Commercial Leisure Services (3) A study of the tourism and commercial leisure services industries. Skill in feasibility study and management. Representative types of tourism and leisure services enterprises and their relationships to the public sector.

RECR 495 Recreation Resource and Facility Planning I (3) Basic principles of planning, design, development, and maintenance of community recreation areas and facilities. The interrelationships between local, regional, state, and national park and recreation systems.

RECR 497 Recreation Resource and Facility Planning II (3) Prerequisite: RECR 495; or permission of department. Principles of design, development, procedures, and maintenance considerations for recreation areas and facilities. Use of analytical methods to carry out park designs and development of skills in graphically conveying design concepts. Safety, efficiency and economy as they affect design, development and park maintenance.

RECR 498 Special Topics in Recreation (3) Repeatable if content differs. Prerequisite: permission of department. Topics of special interest in areas not covered by regularly scheduled courses.

RTVF — Radio Television and Film

RTVF 124 Mass Communication in 20th Century Society (3) The evolution of mass communications and the impact of the media on contemporary society. Emphasis on the relationship of broadcasting and film to social, economic, and political issues.

RTVF 212 Introduction to Broadcasting (3) Two hours of lecture and two hours of laboratory per week. For RTVF majors only. Credit will be granted for only one of the following: RTVF 212 and RTVF 222. Formerly RTVF 222. Development, scope, and influence of radio and television; emphasis on the relationship of the industries to audience, advertisers, and government.

RTVF 213 Introduction to Production (3) Prerequisite: RTVF 212. For RTVF majors only. Credit will be granted for only one of the following: RTVF 213 or RTVF 223. Formerly RTVF 223. Fundamental stages in the planning and completion of programs using radio, television, and film -- preproduction, production and postproduction. Examination of the stages of production, facilities and equipment involved, production aesthetics.

RTVF 214 Introduction to Film (3) Two hours of lecture and two hours of laboratory per week. For RTVF majors only. Introduction to the aesthetics, history, and techniques of film.

RTVF 302 Beginning Sound Production (3) Prerequisite: RTVF 212; and RTVF 213; and RTVF 214 with a grade of C or better in each. Practical experience in sound production, including scripting, acoustics planning, recording, editing, and coordination of personnel. Application principally toward radio.

RTVF 303 Principles of Television Production (3) Prerequisites: RTVF 212, and RTVF 213, and RTVF 214 with a grade of C or better in each. For RTVF majors only. Credit will be granted for only one of the following: RTVF 303 or RTVF 340. Formerly RTVF 340. Theory methods, techniques, and problems of television production; television cameras and lenses, lighting theory and practices, audio, graphic arts and special effects. Practical application in television studios.

RTVF 304 Film Production I (3) Prerequisites: RTVF 212 and RTVF 213 and RTVF 214 with a grade of C or better in each. For RTVF majors only. Credit will be granted for only one of the following: RTVF 304 or RTVF 356. Formerly RTVF 356. Introduction to film technology and techniques.

RTVF 314 The Structure and Meaning of Film for Non-Majors (3) Credit will be granted for only one of the following: RTVF 214 or RTVF 314. Film as an art form. A survey of the cinematic medium, its development, film genres, esthetics, criticism, and the current international scene. Significant American and foreign films are viewed. May not be used for RTVF major credit.

RTVF 317 Introduction to Writing For Radio, Television, Film (3) Prerequisites: RTVF 212, and RTVF 213, and RTVF 214 with a grade of C or better in each. For RTVF majors only. Methods and principles of writing for radio, TV, and film. Basic formats, theories, and writing styles in broadcast and film. Emphasis on public service announcements, campaigns, video and film script formats.

RTVF 321 Close Analysis of Media (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: RTVF 212, and RTVF 213, and RTVF 214 with a grade of C or better in each. For RTVF majors only. Visual and narrative structure of film and television, investigating how form and content create meaning.

RTVF 327 Broadcast Processes and Effects (3) Prerequisites: RTVF 212, and RTVF 213, and RTVF 214 with a grade of C or better in each. For RTVF majors only. Credit will be granted for only one of the following: RTVF 327 or RTVF 347. Formerly RTVF 347. Common analytic approaches to electronic media and their effects on society: mass communication theory, social consequences of mass communication, principles of mass persuasion.

RTVF 342 The History of Broadcasting (3) Prerequisites: RTVF 212; and RTVF 213; and RTVF 214 with a grade of C or better in each. For RTVF majors only. A comparative, historical perspective on the evolution and impact of broadcasting systems in the twentieth century. Primary emphasis on developments in the United States; relevant comparisons drawn from British, Canadian, Western European and Third World cases.

RTVF 343 Media Economics (3) Prerequisites: RTVF 212, and RTVF 213, and RTVF 214 with a grade of C or better in each. For RTVF majors only. Credit will be granted for only one of the following: RTVF 343 or RTVF 457. Formerly RTVF 457. Economic issues involving radio, television, film, and new technologies of cable and satellite transmission.

RTVF 363 The History of the Film (3) Prerequisites: RTVF 212, and RTVF 213, and RTVF 214 with a grade of C or better in each. For RTVF majors only. Credit will be granted for only one of the following: RTVF 363 or RTVF 413. Formerly RTVF 413. A survey of the film as an art form. Cinema pre-history, actualities and the Lumiere tradition, Melies, Griffith, and their contemporaries, the silent film (1920-29): Germany, Russia, and the USA, screen comedy, the sound film (1926-present): American and foreign master directors, recent and current trends.

RTVF 384 Field Work Experience (1-3) Prerequisite: permission of department and 18 RTVF credits and 2.8 GPA. Corequisite: RTVF 385 at same credit level. Senior standing. For RTVF majors only. Supervised, professional field work experience in business, industry, government or education. Credits do not apply toward the major.

RTVF 385 Field Work Analysis (1-3) Prerequisite: permission of department and 18 RTVF credits and 2.8 GPA. Corequisite: RTVF 384 at the same credit level. Senior standing. For RTVF majors only. Written critique or project derived from the field work experience.

RTVF 402 Advanced Sound Production (3) Prerequisites: RTVF 302 and permission of department. An advanced sound production methodology in radio drama and documentaries.

RTVF 403 Television Direction I (3) Prerequisites: RTVF 303 and permission of department. For RTVF majors only. Credit will be granted for only one of the following: RTVF 403 or RTVF 440. Formerly RTVF 440. Principles of television direction including elements of composition, picturization, timing, script notation and program coordination.

RTVF 404 Television Direction II (3) Prerequisites: RTVF 423 and permission of department. For RTVF majors only. Credit will be granted for only one of the following: RTVF 404 or RTVF 441. Formerly RTVF 441. Advanced theories of television direction; script analysis and adaptation, production coordination, casting, blocking, rehearsals and mixing.

RTVF 405 Film Production II, Cinematography (3) Prerequisites: RTVF 304 and permission of department. For RTVF majors only. Credit will be granted for only one of the following: RTVF 405 or RTVF 357. Formerly RTVF 357. Development of proficiency in 16mm film production.

RTVF 406 Film Production III, Synchronized Sound Film Systems (3) Prerequisite: RTVF 405 and permission of department. For RTVF majors only. Credit will be granted for only one of the following: RTVF 406 or RTVF 466. Formerly RTVF 466. Synchronized sound and color technology with emphasis on the 16mm format.

RTVF 407 Television Workshop (3) Prerequisite: permission of department. For RTVF majors only. Formerly RTVF 449. Special studio projects.

RTVF 417 Screenwriting for TV and Film I (3) Prerequisites: RTVF 317; and permission of department. Story and character development, plot structure, theories of drama and comedy, screenplay format. Students write original treatment and first half of screenplay for film or television; projects are critiqued in group story and script conferences.

RTVF 426 Gender Roles and Media (3) Prerequisite: RTVF 321 or RTVF 327. Influence and interaction of gender role and mass media. Gender images in their cultural historical context and their role in the cultural evolution of media.

RTVF 427 Screenwriting for TV and Film II (3) Prerequisites: RTVF 417 and permission of department. For RTVF majors only. Advanced writing students complete a dramatic or comedy script for motion pictures or television. Most students will be completing scripts from RTVF 417.

RTVF 431 Television Programming (3) Prerequisite: RTVF 327 or RTVF 342 or RTVF 343. For RTVF majors only. Credit will be granted for only one of the following: RTVF 431 or RTVF 351. Formerly RTVF 351. The course examines programming trends, theories, and strategies in American television. It explores two major programming areas: program development, and current programming theories and practices. Students analyze current network theories and strategies. In a group simulation process, class teams work up original programs and schedules to compete with current network practices.

RTVF 432 Structure and Criticism of Television Advertising (3) Prerequisites: RTVF 317; and (RTVF 321 or RTVF 342). For RTVF majors only. Credit will be granted for only one of the following: RTVF 432 or RTVF 456. Formerly RTVF 456. An examination of the persuasive power of television advertising. Analysis of form, structure and content of the television commercial and techniques used to influence attitudes and behavior.

RTVF 436 Television News and Public Affairs (3) Prerequisite: RTVF 317 or RTVF 327 or RTVF 342. For RTVF majors only. Credit will be granted for only one of the following: RTVF 436 or RTVF 346. Formerly RTVF 346. Development of broadcast journalism, current problems concerning radio and television news, and the development of the documentary.

RTVF 437 Quantitative Methods of Broadcast Research (3) Prerequisite: RTVF 327. For RTVF majors only. Credit will be granted for only one of the following: RTVF 437 or RTVF 447. Formerly RTVF 447. An examination of the fundamentals of research methodology as it relates to the study and analysis of broadcast audiences.

RTVF 442 Public Broadcasting (3) Prerequisite: RTVF 321 or RTVF 327 or RTVF 342 or RTVF 343. For RTVF majors only. Credit will be granted for only one of the following: RTVF 442 or RTVF 332. Formerly RTVF 332. Public television and radio: development; problems; influence; its place in contemporary broadcasting, through the viewing of and listening to selected programs.

RTVF 443 Television and Children (3) Prerequisite: RTVF 321 or RTVF 327 or RTVF 342 or RTVF 343. For RTVF majors only. Credit will be granted for only one of the following: RTVF 443 or RTVF 333. Formerly RTVF 333. A study of programming designed for children. Investigation of current research and the analysis of specific programs.

RTVF 445 Television and Politics (3) Prerequisite: RTVF 321 or RTVF 327 or RTVF 342. For RTVF majors only. Credit will be granted for only one of the following: RTVF 445 or RTVF 425. Formerly RTVF 425. Critical review of studies of the effects of political broadcasts; legal and social issues; surveys and media campaigns.

RTVF 450 Radio and Television Station Management (3) Prerequisite: RTVF 342 or RTVF 343. For RTVF majors only. The role of the manager in broadcasting industry. Station organization, licensing, regulation, sales, programming, personnel, and promotion are examined in light of the competitive marketplace.

RTVF 451 Broadcast Criticism (3) Prerequisite: RTVF 321 or RTVF 342. For RTVF majors only. An analysis of the professional, historical, social, and psychological criticism of American television, together with practical application of professional and scholarly critical methods.

RTVF 461 Film Criticism and Theory (3) Prerequisite: RTVF 321 or RTVF 363 for RTVF majors; or RTVF 314 or ENGL 245 for other majors. Credit will be granted for only one of the following: RTVF 461 or RTVF 421. Formerly RTVF 421. Study of various theoretical models of film analysis and applied critical writing on such topics as montage, mise-en-scene, ideology, feminism, psychoanalysis, and structuralist approaches.

RTVF 462 African American Women Filmmakers (3) Prerequisite: RTVF 321 or RTVF 363 for RTVF majors; or RTVF 314 or ENGL 245 for other majors. The cinematic artistry of African American women filmmakers and the ways in which these films address the dual and inseparable roles of race and gender.

RTVF 463 The Documentary Film (3) Prerequisite: RTVF 321 or RTVF 363 for RTVF majors; RTVF 314 or ENGL 245 for other majors. Credit will be granted for only one of the following: RTVF 463 or RTVF 420. Formerly RTVF 420. Growth, implication, and the use of the international nonfiction film as propaganda, public service, promotion, education, and entertainment. Case studies from representative documentaries will be analyzed.

RTVF 464 Contemporary American Cinema (3) Prerequisite: RTVF 321 or RTVF 363 for RTVF majors; or RTVF 314 or ENGL 245 for other majors. Credit will be granted for only one of the following: RTVF 467 or RTVF 414. Formerly RTVF 414. Analysis of major trends, styles, and figures in post-World War II American film. Emphasis is on how recent "new wave" directors function in the Hollywood system.

RTVF 465 Contemporary European Cinema (3) Prerequisite: RTVF 321 or RTVF 363 for RTVF majors; or RTVF 314 or ENGL 245 for other majors. Credit will be granted for only one of the following: RTVF 465 or RTVF 415. Formerly RTVF 465. A comparative and critical analysis of European and other national cinemas. Emphasis is on post World War II figures, movements, and stylistic innovations.

RTVF 467 The Film Industry: History and Technology (3) Prerequisite: RTVF 346 or RTVF 363 for RTVF majors; or RTVF 314 or ENGL 245 for other majors. Credit will be granted for only one of the following: RTVF 467 or RTVF 424. Formerly RTVF 424. History, status and present functions of the American film industry including studio system, innovation of color and sound, distribution and exhibition.

RTVF 468 The Film Auteur (3) Prerequisite: RTVF 321 or RTVF 363 for RTVF majors; or RTVF 314 or ENGL 245 for other majors. Repeatable to 6 credits if content differs. Formerly RTVF 418. The intensive chronological study of the work of one European or American film director each semester.

RTVF 469 Film Genres (3) Prerequisite: RTVF 321 or RTVF 363 for RTVF majors; or RTVF 314 or ENGL 245 for other majors. Repeatable to 6 credits if content differs. Formerly RTVF 419. The study of one major film genre each semester (e.g., the western, science fiction, melodrama, political film). Emphasis is on cultural implications of generic forms.

RTVF 470 Corporate Television (3) Prerequisites: RTVF 302 and RTVF 303. Theories and practices associated with television for communication in business, industry, government, medicine, health and related fields.

RTVF 471 Broadcast Regulation (3) Prerequisite: RTVF 342 or RTVF 343. For RTVF majors only. Credit will be granted for only one of the following: RTVF 471 or RTVF 453. Formerly RTVF 453. Legal issues involving radio and television: freedom, restraints, self-regulation, regulation of programming, competition, rights as seen by the broadcaster, regulatory agencies and the public.

RTVF 472 Cable Television (3) Prerequisite: RTVF 342 or RTVF 343. For RTVF majors only. Credit will be granted for only one of the following: RTVF 472 or RTVF 454. Formerly RTVF 454. History, regulatory development, systems designs, communications capability and franchising of cable television.

RTVF 473 International and Comperative Broadcasting Systems (3) Prerequisite: RTVF 327 or RTVF 342. For RTVF majors only. Credit will be granted for only one of the following: RTVF 473 or RTVF 452. Formerly RTVF 452. Comparative study of international broadcasting organizations, ownership, regulatory structures and program policies. Role of broadcasting in international affairs: information, entertainment, political, cultural and technology exchange. International broadcasting programs.

RTVF 478 National Cinemas (3) Prerequisite: RTVF 321 or RTVF 363 for RTVF majors; or RTVF 314 or RTVF 245 for other majors. Repeatable to 6 credits if content differs. Variable topic course which will explore the interrelationship of nation, national culture and the cinema. Topics may include third world cinema, Asian cinema, French, Italian, or other European cinemas, or national film movements such as German Expressionism, the French New Wave.

RTVF 498 Seminar (3) Prerequisite: permission of department. Senior standing. Repeatable to 6 credits. Present day radio-television-film research.

RTVF 499 Independent Study (1-3) Prerequisite: permission of department. For RTVF majors only. Repeatable to 6 credits if content differs.

RUSS — Russian

RUSS 101 Elementary Russian I (5) Two hours of lecture and six hours of laboratory per week. Not open to native speakers of Russian. Elements of grammar, pronunciation, conversation and reading; exercises in translation.

RUSS 102 Elementary Russian II (5) Two hours of lecture and six hours of laboratory per week. Prerequisite: RUSS 101. Not open to native speakers of Russian. Continuation of RUSS 101. Elements of grammar, pronunciation, and conversation; exercises in translation.

RUSS 201 Intermediate Russian I (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: RUSS 102. Not open to native speakers of Russian. Continuation of RUSS 102. For students planning to continue the study of Russian. Review and expansion of grammar knowledge, conversation and reading skills; exercises in translation. Note: this new RUSS 201 has no relation to the old SLAV 201, which is to be eliminated.

RUSS 202 Intermediate Russian II (4) Two hours of lecture and four hours of laboratory per week. Prerequisite: RUSS 201. Not open to native speakers of Russian. Continuation of RUSS 201. Review and expansion of grammar knowledge, conversation and reading skills. Exercises in translation.

RUSS 210 Structural Description of Russian (3) Pre- or corequisite: RUSS 201 or equivalent. An introductory linguistic course designed to order and supplement students' knowledge of the sound system and the inflectional system of the verb. A practical component on reading skills also focuses on the verb and methods of developing vocabulary.

RUSS 211 Applied Russian Phonetics (3) Prerequisite: RUSS 102. Not open to native speakers of Russian. Pronunciation; the sounds and intonational patterns of Russian in contrast with those of English.

RUSS 221 Masterworks of Russian Literature I (3) Introduction to the classics of Russian literature in translation, beginning with Pushkin in the early 19th century

and concluding with works of Dostoevsky and Tolstoy in the later part of that century

RUSS 222 Masterworks of Russian Literature II (3) Introduction to the classics of Russian literature in translation, beginning with the later works of Dostoevsky and Tolstoy and extending to the present with works by Solzhenitsyn.

RUSS 281 Russian Language and Pre-Revolutionary Culture (3) Not open to native speakers of Russian. Introduction to the Russian language and a study of Russian nationalism; artistic and social concepts in the development of Russian art, dance, geography, history and literature from the 18th to the 20th centuries. Lectures in English, with third hour devoted to basic language instruction (alphabet, vocabulary, pronunciation and minimal conversational skills).

RUSS 282 Russian Language and Soviet Culture (3) Prerequisite: RUSS 281. Not open to native speakers of Russian. Continuation of introduction to the Russian language and a study of cultural developments since the Revolution. Lectures in English, with third hour devoted to language study (overview of grammar, conversation, and basic reading).

RUSS 298 Special Topics in Russian Language and Literature (3) Repeatable to 6 credits if content differs.

RUSS 301 Advanced Russian Grammar and Composition I (3) Prerequisite: RUSS 202 or equivalent. A thorough training in the structure of the language; drill in Russian composition.

RUSS 302 Advanced Russian Grammar and Composition II (3) Prerequisite: RUSS 301.
A continuation of RUSS 301.

RUSS 303 Russian Conversation: Functional Skills (3) Prerequisite: RUSS 202 or equivalent. Intended for students who do not anticipate having the opportunity to study in the Soviet Union. Skills for daily life (both function and etiquette) and argumentation (rhetoric).

RUSS 307 Commercial Russian I (3) Prerequisite: RUSS 202 or equivalent. Designed to give introductory knowledge of correct commercial Russian including letters, business forms, contracts, and agreements.

RUSS 321 Survey of Russian Literature I (3) Prerequisite: RUSS 202 or equivalent. The first half of a survey of Russian literature.

RUSS 322 Survey of Russian Literature II (3) Prerequisite: RUSS 321 or equivalent. The second half of a survey of Russian literature.

RUSS 327 Old Russian Literature in Translation (3) Recommended: RUSS 221. Old Russian literature of the 11th-17th centuries for the general student. Selected texts will be read in translation, with analysis in terms of genre and historical setting.

RUSS 328 19th Century Russian Literature in Translation (3) Repeatable to 6 credits if content differs. Development of Russian literary thought in the Russian novel and short prose of the 19th century. Influence of western literatures and philosophies.

RUSS 329 Soviet Literature in Translation (3) Repeatable to 6 credits if content differs. Russian literature since 1917, both as a continuation of prerevolutionary traditions and as a reflection of Soviet ideology.

RUSS 381 Russian Civilization (in Russian) I (3) Prerequisite: RUSS 202. A historical survey of Russian civilization emphasizing architecture, painting, sculpture, music, ballet and the theater to the beginning of the 19th century pointing out the inter-relationship of all with literary movements. Taught in Russian.

RUSS 382 Russian Civilization (in Russian) II (3) Prerequisite: RUSS 202. A historical survey of Russian civilization emphasizing architecture, painting, sculpture, music, ballet, and the theater, from the beginning of the 19th century to the present pointing out the inter-relationships of all with literary movements. Taught in Russian.

RUSS 398 Selected Topics in Russian Language and Literature (3) Repeatable to 6 credits if content differs.

RUSS 401 Advanced Russian Composition (3) Prerequisite: RUSS 302

RUSS 402 Practicum in Written Russian (3) Prerequisite: RUSS 401 or equivalent. Designed to improve comprehension of functional varieties of written Russian and develop ability to present in written form concise syntheses of source texts.

RUSS 403 Russian Conversation: Advanced Skills (3) Prerequisite: RUSS 303 or equivalent. Advanced spoken production of high-level, abstract language.

RUSS 404 Practicum in Spoken Russian (3) Prerequisite: RUSS 403 or equivalent. To improve comprehension of rapidly spoken Russian of various functional styles and to develop ability to synthesize orally the content of spoken material.

RUSS 405 Russian-English Translation I (3) Pre- or corequisite: RUSS 302 or equivalent. Introduction to the principles of translation of a particular genre, -- typically diplomatic, business, or literary.

RUSS 406 Russian-English Translation II (3) Prerequisite: RUSS 405. Continuation of RUSS 405.

RUSS 407 Commercial Russian II (3) Prerequisite: RUSS 307. Continuation of RUSS 307 focusing in the more difficult and complex Russian business documents and Russian business ministries.

RUSS 409 Selected Topics in Russian Language Study (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Presentation of a topic in Russian language study

RUSS 410 Applied Russian Linguistics (3) The nature of applied linguistics and its contributions to the effective teaching of foreign languages. Comparative study of English and Russian, with emphasis upon points of divergence. Analysis, evaluation and construction of related drills.

RUSS 411 Linguistic Analysis of Russian I (3) Prerequisites: RUSS 210; and LING 200. Pre- or corequisite: RUSS 301. Elucidation of theoretical concepts of modern linguistics through the analysis of problematic concepts in the Russian linguistic system. Phonology and the syntax of the simple sentence.

RUSS 412 Linguistic Analysis of Russian II (3) Prerequisite: RUSS 411. Continuation of RUSS 411. The syntax of the complete sentence, semantics.

RUSS 431 Russian Literature of the 19th Century I (3)

RUSS 432 Russian Literature of the 19th Century II (3)

RUSS 433 Russian Literature of the 20th Century (3)

RUSS 434 Soviet Russian Literature (3)

RUSS 439 Selected Topics in Russian Literature (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Presentation of a topic in Russian literature.

RUSS 473 Recent History of the Russian Language (3) Prerequisite: RUSS 210 or equivalent. Linguistic interpretation of Russian texts from the late 18th century to the present.

SLAV — Slavic

SLAV 469 Selected Topics in Slavic Studies (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Presentation of a topic in Slavic studies.

SLAV 475 Old Church Slavonic (3) Introduction to the language of the oldest recorded Slavic documents. Historical presentation of phonology, morphology, and syntax, reading of texts.

SLAV 479 Selected Topics in Slavic Linguistics (3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Presentation of a topic in Slavic linguistics.

SLAV 499 Directed Study (1-3) Prerequisite: permission of department. For advanced students. Repeatable to 6 credits if content differs.

SOCY—Sociology

SOCY 100 Introduction to Sociology (3) The fundamental concepts and principles of sociology. Includes consideration of culture, patterns of social interaction, norms, values, social institutions, stratification, and social change

SOCY 105 Introduction to Contemporary Social Problems (3) An examination of contemporary social problems through sociological perspectives; ways in which social problems are part of the organization of society; a detailed study of selected social problems including social conflict and social inequality.

SOCY 120 Urban Sociology (3) Urban growth and expansion: characteristics of city populations; urban institutions and personality patterns; relations of city and country

SOCY 201 Introductory Statistics for Sociology (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: SOCY 100 and MATH 111 or equivalent. Not open to students who have completed BMGT 231, ENEE 324, or STAT 400. Credit will be granted for only one of the following: AREC 484, BIOM 301, BMGT 230, CNEC 400, ECON 321, EDMS 451, GEOG 305, GVPT 422, PSYC 200, SOCY 201, URSP 350, or TEXT 400. Elementary descriptive and inferential statistics. Construction and percentaging of bivariate contingency tables; frequency distributions and graphic presentations; measures of central tendency and dispersion; parametric and nonparametric measures of association and correlation; regression; probability; hypothesis testing; the normal, binomial and chi-square distributions; point and interval estimates.

SOCY 202 Introduction to Research Methods in Sociology (4) Prerequisite: SOCY 201. The underlying logic, major strategies, specific techniques and skills of sociological research. Research design, measurement, data collection, sampling, field research experiments, surveys, index and scale construction, data analysis, interpretation and report writing

SOCY 203 Sociological Theory (3) Prerequisite: SOCY 100. Development of the science of sociology; historical backgrounds; recent theories of society. Required of all sociology majors.

SOCY 227 Introduction to the Study of Deviance (3) Credit will be granted for only one of the following: SOCY 227 or SOCY 327. Formerly SOCY 327. An introduction to the sociological study of deviant behavior, covering such topics as mental illness, sexual deviance, and the use of drugs.

SOCY 230 Sociological Social Psychology (3) Social psychology of groups such as committees, teams, clubs, sects, social movements, crowds and publics. Origin of the social self, role behavior, inter-group and intragroup relations.

SOCY 241 Inequality in American Society (3) Credit will be granted for only one of the following: SOCY 241 or SOCY 341. Formerly SOCY 341. The sociological study of the status and treatment of the poor, minorities, the aged, women, deviant subcommunities and the physical handicapped. The dynamics of inequality; its social production, politics, future and ideological bases. Utopian communities, efforts to eliminate inequality.

SOCY 243 Sociology of Marriage and Family (3) Credit will be granted for only one of the following: SOCY 243 or SOCY 343. Formerly SOCY 343. Demographic trends in family and marriage, childbearing, divorce; sociological theories of mate selection, marital interaction, and marital dissolution. Contemporary controversial issues, such as the relationship of unmarried couples, alternative marriage forms, abortion, and violence in the family

SOCY 300 American Society (3) The social structure and organization of American society with special reference to recent social change. A sociological perspective on urban and other population trends, the character structure, values and ideology of Americans - social movements and changes in work, family life and recreation.

SOCY 305 Scarcity and Modern Society (3) Prerequisite: 3 credits of sociology. Resource depletion and the deterioration of the environment. Relationship to life styles, individual consumer choices, cultural values, and institutional failures. Projection of the future course of American society on the basis of the analysis of scarcity, theories of social change, current trends, social movements, government actions, and the futurist literature

SOCY 312 Family Demography (3) Prerequisite: 3 credits of sociology. Family and population dynamics

Fertility issues, such as teenage pregnancy, the timing of parenthood, and the determinants and consequences of family size; as they relate to family behavior, such as marital patterns, child care use, and the relationship between work and the family. Policy issues that relate to demographic changes in the family.

SOCY 325 The Sociology of Gender (3) Prerequisite: 3 credits of sociology. Institutional bases of gender roles and gender inequality, cultural perspectives on gender, gender socialization, feminism, and gender-role change. Emphasis on contemporary American society.

SOCY 331 Work, Bureaucracy, and Industry (3) Prerequisite: 3 credits of sociology. A sociological approach to the world of work, occupational careers, and personal experiences in the bureaucratic organizations of modern industrial society.

SOCY 333 Technology and Society (3) Prerequisite: 3 credits of sociology. Impact of technology on agriculture, the industrial revolution, politics, economics, and health, education and welfare, as these affect changes in social organizations. The development of small cities, the better utilization of energy, the use of wealth and abundance and its relation to the division of labor, and the role of technology in shaping of new forms of political and economic organizations.

SOCY 350 Social Field Training (1-3) Prerequisites: 12 credits of sociology and permission of department. Formerly SOCY 359. Enrollment restricted to available placements. Supervised field experience in an agency for a program of in-service training. Group meetings, individual conferences and written program reports will be a required part of the course.

SOCY 380 Honors Independent Reading in Sociology (3) Prerequisite: permission of department. Formerly SOCY 378. This course permits sociology honors students to undertake a program or reading on a particular problem in sociology or a subfield therein. The reading will be done under the supervision of a member of the sociology faculty. Required of sociology honor students.

SOCY 381 Honors Independent Research in Sociology (3) Prerequisite: SOCY 380. Formerly SOCY 388. This course permits sociology students to define a particular problem in sociology or a subfield therein and to develop a research plan for use as a thesis topic. The work will be done under the supervision of a member of the sociology faculty.

SOCY 383 Honors Thesis Research (3) Prerequisite: SOCY 381. Formerly SOCY 389. Student research under the direction of a member of the sociology faculty, culminating in the presentation and defense of a thesis reporting the research.

SOCY 398 Special Topics in Sociology (1-3) Prerequisite: 3 credits of sociology. Repeatable to 6 credits if content differs. Topics of special interest to both sociology majors and non-majors.

SOCY 399 Independent Study in Sociology (1-6) Prerequisite: 12 credits of sociology and permission of department. Repeatable to 6 credits if content differs. Integrated reading or research under the direction and supervision of a faculty member. A maximum of 6 credits may be earned by a student for the same field experience in SOCY 386 and SOCY 399 combined.

SOCY 401 Intermediate Statistics for Sociologists (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: SOCY 201 or equivalent or permission of department. Not open to students who have completed ENEE 324, BMGT 231, or STAT 400. Issues in the use of significance tests in sociology, one and two-way analysis of variance, elements of multiple regression and correlation, techniques for the analysis of nominal and ordinal data.

SOCY 402 Intermediate Procedures For Data Collection (3) Prerequisite: SOCY 202 or equivalent or permission of department. An intermediate survey of the major research methods used by sociologists, including survey research, experimentation, observation, archival research, and in-depth interviewing. The selection of an appropriate research method, with analysis of the strengths and weaknesses of various methods, practical issues, data collection and preparation, and analytical techniques.

SOCY 403 Intermediate Sociological Theory (3) Prerequisite: SOCY 203 or permission of department. Major theoretical approaches, including functionalism conflict, symbolic interactionism, and their implicit methods of logic illustrated by case studies. Original works of major theorists in historical perspective.

SOCY 404 Methods of Quantitative Analysis (4) Three hours of lecture and two hours of laboratory per week. Prerequisite: (SOCY 202 or equivalent) or permission of department. Analysis of sociological data through the use of statistical packages such as SPSS, BMDP or SAS. Emphasis is on the use of multivariate statistical techniques.

SOCY 410 Social Demography (3) Prerequisite: 6 credits of sociology or permission of department. Types of demographic analysis; demographic data; population characteristics; migration; mortality, fertility; population theories; world population growth; population policy.

SOCY 411 Demographic Techniques (3) Prerequisite: SOCY 201 or equivalent and SOCY 410 or permission of department. Basic techniques for analyzing population structure and demographic processes, including fertility, mortality and migration.

SOCY 423 Ethnic Minorities (3) Prerequisite: 6 credits of sociology or permission of department. Basic social processes in the relations of ethnic groups; immigration groups, African Americans, and Native Americans in the United States; ethnic minorities in Europe.

SOCY 424 Sociology of Race Relations (3) Prerequisite: 6 credits in sociology or permission of department. Analysis of race-related issues, with a primary focus on American society. The historical emergence, development, and institutionalization of racism; the impact of racism on its victims; and racially based conflict.

SOCY 425 Gender Roles and Social Institutions (3) Prerequisite: 6 credits of sociology or permission of department. Relationship between gender roles and the structure of one or more social institutions (e.g., the economy, the family, the political system, religion, education). The incorporation of gender roles into social institutions; perpetuation or transformation of sex roles by social institutions; how changing gender roles affect social institutions.

SOCY 426 Sociology of Religion (3) Prerequisite: 6 credits of sociology or permission of department. Varieties and sources of religious experience. Religious institutions and the role of religion in social life.

SOCY 427 Deviant Behavior (3) Prerequisite: 6 credits of sociology or permission of department. Current theories of the genesis and distribution of deviant behavior, and their implications for a general theory of deviant behavior. Definitions of deviance, labeling theory, secondary deviance.

SOCY 430 Sociology of Personality (3) Prerequisite: 6 credits of sociology or permission of department. Development of human nature and personality in contemporary social life; processes of socialization; attitudes, individual differences and social behavior.

SOCY 431 Formal and Complex Organizations (3) Prerequisite: 6 credits of sociology or permission of department. The concept of formal organization. The study of functioning and control in the operation of bureaucracies such as corporations and in large-scale organizations such as military, religious and educational hierarchies. Forms of recruitment, internal mobility and organizational personality. Relations between large-scale organizations and with the larger society.

SOCY 432 Collective Behavior (3) Prerequisite: 6 credits of sociology or permission of department. Unlike most sociology courses which focus on structured groups, this course examines instances of transient behavior: crowds, disasters, hysterical contagion, revolution, and social movements, including American Utopian experiments.

SOCY 433 Social Control (3) Prerequisite: 6 credits of sociology or permission of department. Forms, mechanism, and techniques of group influence on human behavior; problems of social control in contemporary society.

SOCY 440 Sociology of the Self-Concept (3) Prerequisite: 6 credits of sociology or permission of department. The nature of the self-concept and the social forces that mold it. Major sociological, psychological, and psycho-analytic theories of the self-concept. Self-concept motives, mechanisms of self-defense, and the nature of a healthy self-concept. Empirical research dealing with the meaning of social interaction, social structure, social context and social institutions on the self-concept.

SOCY 441 Social Stratification and Inequality (3) Prerequisite: 6 credits of sociology or permission of department. 56 semester hours. Junior standing. Credit will be granted for only one of the following: SOCY 241 or SOCY 441. The sociological study of social class, status, and power. Topics include theories of stratification, correlates of social position, functions and dysfunctions of social inequality, status inconsistency, and social mobility.

SOCY 443 The Family and Society (3) Prerequisite: 6 credits of sociology or permission of department. Study of the family as a social institution, its biological and cultural foundations, historic development, changing structures, and functions, the interaction of marriage and parenthood, disorganizing and reorganizing factors in present day trends.

SOCY 445 Sociology of the Arts (3) Prerequisite: 6 credits of sociology or permission of department. Functions of the arts as a social institution. Social role of the artist. Recruitment to and organizational structure of artistic professions. Art forms and social characteristics of audiences. Changing technology and changing social values as reflected in artistic expression.

SOCY 447 Small Group Analysis (3) Prerequisite: SOCY 201 or equivalent or permission of department. Analysis of small group structures and dynamics. Review of research on small groups in real life settings and in laboratories. Presentation of techniques used in small groups.

SOCY 457 Sociology of Law (3) Prerequisite: 6 credits of sociology or permission of department. Social, political, and cultural sources of legal norms and concepts (such as property, privacy, contract, institution, and liability), as well as the role of law in interpersonal and intergroup dispute resolution. Emphasis on civil law.

SOCY 460 Sociology of Work (3) Prerequisite: 6 credits of sociology or permission of department. Analysis of the American work world with special attention to the impact of social change and occupational conflicts on the individual worker. Professionalization, career patterns, problems of minority groups and the future of work.

SOCY 462 Industrial Sociology (3) Prerequisite: 6 credits of sociology or permission of department. The sociology of human relations in American industry and business. Complex industrial and business organization as social systems. Social relationships within and between industry, business, community and society.

SOCY 464 Military Sociology (3) Prerequisite: 6 credits of sociology or permission of department. Social change and the growth of military institutions. Complex formal military organizations. Military service as an occupation or profession. The sociology of military life. Relations between military institutions, civilian communities and society.

SOCY 465 The Sociology of War (3) Prerequisite: 6 credits of sociology or permission of department. The origin and development of armed forces as institutions, the social causes, operations and results of war as social conflict; the relations of peace and war and revolution in contemporary civilizations.

SOCY 466 Sociology of Politics (3) Prerequisite: 6 credits of sociology or permission of department. An introduction to the sociology of political phenomena. Consideration of the basic concepts and major findings in the field; the relationship of the polity to other institutional orders of the society; the relationship of political activity in America to the theory of democracy.

SOCY 467 Sociology of Education (3) Prerequisite: 6 credits of sociology or permission of department. Sociological analysis of educational institutions and their relation to society: goals and functions, the mechanisms of social control, and the impacts of stratification and social change. Study of the school as a formal organization, and the roles and subcultures of teachers and students.

SOCY 470 Rural-Urban Relations (3) Prerequisite: 6 credits of sociology or permission of department. The ecology of population and the forces making for change in rural and urban life; migration, decentralization and regionalism as methods of studying individual and national issues. Applied field problems.

SOCY 473 The City (3) Prerequisite: 6 credits of sociology or permission of department. The rise of urban civilization and metropolitan regions; ecological process and structure; the city as a center of dominance; social problems, control and planning.

SOCY 474 Soviet Ethnic Issues (3) Prerequisite: 6 credits of sociology or permission of department. Ethnic processes and issues in the Soviet Union. The major ethnic groups in the U.S.S.R. cultural, political, religious, economic, and other aspects of Soviet ethnicity.

SOCY 498 Selected Topics in Sociology (1-3) Prerequisite: 6 credits of sociology or permission of department. Repeatable to 6 credits. Topics of special interest to advanced undergraduates in sociology. Such courses will be offered in response to student request and faculty interest.

SPAN — Spanish

The language of instruction in all courses is Spanish unless otherwise noted.

SPAN 101 Elementary Spanish I (4) Four hours of discussion/recitation per week. Prerequisite: No previous Spanish; high school level 1 Spanish with grade of A or B; high school level 2 Spanish with a grade of C or below. Not open to native/fluent speakers of Spanish. Introduction to the functions and structures of the Spanish language, with emphasis on the four skills of listening, speaking, reading and writing.

SPAN 102 Elementary Spanish II (4) Four hours of discussion/recitation per week. Prerequisite: SPAN 101 at UMCP or equivalent. Not open to native/fluent speakers of Spanish. Further study of the functions and structures of the Spanish language, with emphasis on the four skills of listening, speaking, reading and writing.

SPAN 103 Review of Elementary Spanish (4) Not open to students who have completed higher level Spanish language classes. An intensive beginning course in Spanish language skills: guided practice in reading and writing, understanding the spoken language and conversation, to enable the student to move more quickly to advanced courses.

SPAN 125 Spanish Civilization: From Kingdoms to Nationalities (3) Introduction to the cultural heritage of the Spanish people, their traditions, customs, arts and literature, with special emphasis on the interrelationship of social and literary history.

SPAN 201 Intermediate Spanish (4) Prerequisite: SPAN 102 or SPAN 103 at UMCP or high school level 3 Spanish with a grade of A or B or high school level 4 Spanish with a C or below. Not open to native/fluent speakers of Spanish. Formerly SPAN 203. Continued development of the functions and structures of the Spanish language with emphasis on the four skills of listening, speaking, reading, and writing.

SPAN 202 Intermediate Grammar and Composition (3) Prerequisite: SPAN 201 or high school level 4 or 5 with a grade of A or B or permission of department. Corequisite: SPAN 207 and/or SPAN 211. Not open to native/fluent speakers of Spanish. Formerly SPAN 204. An in-depth study and analysis of selected grammatical topics with emphasis on composition, writing and reading.

SPAN 206 Review of Oral and Written Spanish for Native Speakers Educated in the United States (3) Prerequisite: native or near native knowledge of oral Spanish and no formal education in Spanish. Review of oral and written Spanish for students who have native or near-native ability in Spanish, but have never studied it in a formal setting.

SPAN 207 Reading and Writing in Spanish (3) Prerequisites: SPAN 201. Pre- or corequisite: SPAN 202, or permission of department. Selected readings with emphasis on reading comprehension and the development of reading strategies. Work in composition writing and a review of selected grammatical topics. Complements material of SPAN 202.

SPAN 211 Intermediate Conversation (3) Prerequisite: SPAN 201 or permission of department. Not open to native fluent speakers of Spanish. Formerly SPAN 205. Development of listening and speaking skills in Spanish. Opportunity to develop oral fluency, improve pronunciation and increase vocabulary. Individual and/or group oral presentations.

SPAN 221 Introduction to Literature (3) Prerequisite: Spanish high school level 5 or above or SPAN 202 or permission of department. Selected readings in various genres in Spanish and Latin American literature. Discussion and written reports in Spanish. May be substituted for SPAN 207 with permission of department.

SPAN 224 Violence and Resistance in the Americas (3) Indigenous vision of violence and resistance in the Americas. Texts and maps from the European explorers and conquerors are also studied. Readings include primary texts from the 16th as well as from the 20th century. All readings are in English. No Spanish is required.

SPAN 301 Advanced Grammar and Composition I (3) Prerequisite: SPAN 202. Recommended: SPAN 207. Practice of complex grammatical structures through reading and writing of compositions and essays. Specific lexical, syntactic, rhetorical, and stylistic devices will be highlighted.

SPAN 302 Advanced Grammar and Composition II (3) Prerequisite: SPAN 301. Practice in and writing of different types of compositions and essays, including narrations, descriptions, and persuasive writing. Review of problematic syntactical structures.

SPAN 310 Spanish Phonetics (3) Prerequisite: SPAN 202 or permission of department. Descriptive study of the Spanish sound system. Practice in phonetic perception, transcription, and articulation. Particular attention to sentence phonetics; juncture, rhythm, stress, pitch.

SPAN 311 Advanced Conversation I (3) Prerequisite: SPAN 202 or SPAN 211 or permission of department. Not open to native/fluent speakers of Spanish. Further development of listening and speaking skills in Spanish. Opportunity to develop oral fluency improve pronunciation and increase vocabulary. Individual and/or group oral presentations.

SPAN 312 Advanced Conversation II (3) Prerequisites: SPAN 202 and SPAN 211 or SPAN 311 or permission of department. Not open to native/fluent speakers of Spanish. Continued mastery of listening and speaking skills in Spanish. Opportunity to develop oral fluency, improve pronunciation, and increase vocabulary. Emphasis on colloquial and technical language as well as development of linguistic accuracy. Individual and/or group oral presentation.

SPAN 315 Commercial Spanish I (3) Prerequisite: SPAN 301 or permission of department. Business Spanish terminology, vocabulary and practices. Emphasis on everyday spoken and written Spanish. Readings and discussions of Spanish commercial topics. May include exposure to Spanish business environments.

SPAN 316 Practicum in Translation I (3) Prerequisite: SPAN 301 and permission of department. Translation of non-literary, non-technical texts into Spanish and/or English.

SPAN 317 Practicum in Translation II (3) Prerequisite: SPAN 316 or permission of department. Translation of non-literary, non-technical texts into Spanish and/or English.

SPAN 318 Translation of Technical Texts (3) Prerequisites: SPAN 317 or permission of department. Repeatable to 6 credits if content differs. Translation of technical and specialized texts in various fields (e.g. medicine, law, international affairs, social work, journalism, technology) into Spanish and/or English.

SPAN 321 Survey of Spanish Literature I (3) Prerequisite: SPAN 301 or permission of department. Overview of the history of Spanish literature from the 12th through the 17th century.

SPAN 322 Survey of Spanish Literature II (3) Prerequisite: SPAN 301 or permission of department. Overview of the history of Spanish literature from the 18th century to the present.

SPAN 323 Survey of Latin-American Literature I (3) Prerequisite: SPAN 301 or permission of department. Overview of the history of Latin American literature from the Precolumbian era through the 18th century.

SPAN 324 Survey of Latin-American Literature II (3) Prerequisite: SPAN 301 or permission of department. Overview of the history of Latin American literature from the 19th century to the present.

SPAN 325 Spanish Civilization I (3) Prerequisite: SPAN 301 or permission of department. Spanish civilization from the pre-Spanish cultures through the Spanish golden age with emphasis on cultural, social, and artistic aspects.

SPAN 326 Spanish Civilization II (3) Prerequisite: SPAN 301 or permission of department. Spanish civilization from the 18th century to the present day with emphasis on cultural, social, and artistic aspects.

SPAN 346 Latin American Civilization I (3) Prerequisite: SPAN 301 or permission of department. Cultural heritage of the Latin American peoples from the pre-Columbian period to independence.

SPAN 347 Latin American Civilization II (3) Prerequisite: SPAN 301 or permission of department. Cultural heritage of the Latin American peoples from independence to the present.

SPAN 356 Practicum in Translation III (3) Prerequisite: SPAN 317 or permission of department. Translation of descriptive and narrative texts into Spanish and/or English.

SPAN 357 Practicum in Translation IV (3) Prerequisite: SPAN 356 or permission of department. Translation of texts in dialogue form into English and/or Spanish.

SPAN 399 Independent Study in Spanish (1-3) Prerequisite: permission of department. Repeatable to 3 credits. Specific readings in literature or a translation project under the supervision of a faculty member of the department.

SPAN 401 Advanced Composition I (3) Prerequisite: SPAN 302 or permission of department. Compositions and essays with emphasis on stylistics, idiomatic and syntactic structures. Organization and writing of research papers.

SPAN 402 Advanced Composition II (3) Prerequisite: SPAN 401 or permission of department. Compositions and essays with emphasis on stylistics, idiomatic and syntactic structures. Organization and writing of research papers.

SPAN 408 Great Themes of the Hispanic Literatures (3) Pervading themes in the literature of Spain or Spanish-America. Each theme will be announced when the course is offered.

SPAN 409 Great Themes of the Hispanic Literatures (3) Pervading themes in the literature of Spain or Spanish-America. Each theme will be announced when the course is offered.

SPAN 410 Literature of the Middle Ages (3) Spanish literary history from the eleventh through the fifteenth century. Reading of representative texts. This course covers until the year 1350.

SPAN 411 Literature of the Middle Ages (3) Spanish literary history from the eleventh through the fifteenth century. Reading of representative texts. This course covers from 1350 to 1500.

SPAN 412 The Romancero (3) Origin, nature and influence. Extensive reading in each of the respective sub-genres.

SPAN 413 Libro de Buen Amor (3) Literary traditions in the Libro de buen amor.

SPAN 414 La Celestina (3) Literary and cultural traditions in La Celestina.

SPAN 415 Commercial Spanish II (3) Prerequisite: SPAN 315 or permission of department. Sophomore standing. Business Spanish terminology, vocabulary and practices. Emphasis on everyday spoken and written Spanish. Readings and discussions of international topics. Cross-cultural considerations relative to international business operations, including exporting and banking.

SPAN 416 Practicum in Translation V (3) Prerequisite: SPAN 357 or permission of department. Transla-

tion of complete literary texts from Spanish into English. Presentation and comparison of special problems encountered in individual projects.

SPAN 417 Practicum in Translation VI (3) Prerequisite: SPAN 416 or permission of department. Translation of complete literary texts from Spanish into English. Evaluation of different versions of the original. Problems of interpretation, literary structure and analysis.

SPAN 418 Hispanic Literature in Translation (3) Repeatable to 6 credits if content differs.

SPAN 420 Poetry of the 16th Century (3) Prerequisite: SPAN 321 or equivalent. Selected readings and literary analysis.

SPAN 421 Prose of the 16th Century (3) Prerequisite: SPAN 321 or equivalent. Selected readings and literary analysis.

SPAN 422 Cross-Cultural Communication (3) Prerequisite: (SPAN 325 and SPAN 326) or (SPAN 346 and SPAN 347) or permission of department. Junior standing. Focuses on the relationship of language and culture of those operating in world markets. Particular attention will be given to cross-cultural communication, linguistic systems, and culture specific perceptions of the Hispanic world.

SPAN 424 Drama of the Sixteenth Century (3) From the earliest autos and pasos, the development of Spanish drama anterior to Lope de Vega, including Cervantes.

SPAN 430 Cervantes: Don Quijote (3) Prerequisite: SPAN 321 or equivalent.

SPAN 431 Cervantes: Novelas Ejemplares and Entremeses (3) Prerequisite: SPAN 321 or equivalent.

SPAN 434 Poetry of the 17th Century (3) Prerequisite: SPAN 321 or equivalent. Selected readings, literary analysis, and discussion of the outstanding poetry of the period, in the light of the historical background.

SPAN 435 Prose of the 17th Century (3) Prerequisite: SPAN 321 or equivalent. Selected readings, literary analysis, and discussion of the outstanding prose of the period, in the light of the historical background.

SPAN 436 Drama of the Seventeenth Century (3) Prerequisite: SPAN 321. Devoted to Lope de Vega, dramatic theory and the Spanish stage.

SPAN 437 Drama of the Seventeenth Century (3) Drama after Lope de Vega to Calderon de la Barca and the decline of the Spanish theater.

SPAN 440 Literature of the Eighteenth Century (3) Traditionalism, Neo-Classicism, and Pre-Romanticism in prose, poetry, and the theater; esthetics and poetics of the enlightenment.

SPAN 448 Special Topics in Latin American Civilization (3) Repeatable to 6 credits if content differs. Intensive independent study of a selected topic related to Latin American civilization.

SPAN 449 Special Topics in Spanish Civilization (3) Repeatable to 6 credits if content differs. An intensive study of a selected topic related to Spanish civilization.

SPAN 452 The Romantic Movement in Spain (3) Poetry, prose and drama of the Romantic and Post-Romantic periods.

SPAN 454 Nineteenth Century Fiction (3) Significant novels of the nineteenth century.

SPAN 456 Nineteenth Century Drama and Poetry (3) Significant dramas and poetry of the Realist Period.

SPAN 460 The Generation of 1898 and Its Successors (3) Authors and works of all genres of the generation of 1898 and those of the immediately succeeding generation.

SPAN 461 The Generation of 1898 and Its Successors (3) Authors and works of all genres of the generation of 1898 and those of the immediately succeeding generation.

SPAN 462 Twentieth Century Drama (3) Significant plays of the twentieth century.

SPAN 464 Contemporary Spanish Poetry (3) Spanish poetry from the generation of 1927 to the present.

SPAN 466 The Contemporary Spanish Novel (3) The novel and the short story from 1940 to the present.

SPAN 468 Modernism and Post-Modernism in Spain and Spanish-America (3) Repeatable to 9 credits if content differs. A study of the most important works and authors of both movements in Spain and Spanish-America.

SPAN 469 Modernism and Post-Modernism in Spain and Spanish-America (3) Repeatable to 9 credits if content differs. A study of the most important works and authors of both movements in Spain and Spanish-America.

SPAN 479 Honors Thesis (3-6) Prerequisite: admittance to honors program in Spanish and Portuguese Department. Repeatable to 6 credits if content differs. Researching and writing an honors thesis under the direction of a professor.

SPAN 480 Spanish-American Essay (3) A study of the socio-political contents and aesthetic qualities of representative works from the colonial to the contemporary period.

SPAN 481 Spanish American Essay (3) A study of the socio-political contents and aesthetic qualities of representative works from the colonial to the contemporary period, with emphasis on the essay of the twentieth century.

SPAN 488 Spanish-American Fiction (3) Representative novels and/or short stories from the Wars of Independence to the present or close analysis of major contemporary works. Subject will be announced each time course is offered.

SPAN 489 Spanish-American Fiction (3) Representative novels and/or short stories from the Wars of Independence to the present or close analysis of major contemporary works. Subject will be announced each time course is offered.

SPAN 491 Honors Reading Course: Poetry (3) Supervised reading to be taken by students admitted to the honors program or upon consultation with the instructor.

SPAN 492 Honors Reading Course: Novel (3) Supervised reading to be taken by students admitted to the honors program or upon consultation with the instructor.

SPAN 493 Honors Reading Course: Drama (3) Supervised reading to be taken by students admitted to the honors program or upon consultation with the instructor.

SPAN 495 Honors Reading (3) Prerequisite: admittance to Spanish and Portuguese Honors or permission of department. Supervised reading.

SPAN 498 Spanish-American Poetry (3) Main trends, authors and works from the conquest to Ruben Dario.

SPCH — Speech

SPCH 100 Foundations of Speech Communication (3) Not open to students who have completed SPCH 107. Credit will be granted for only one of the following: SPCH 100 or SPCH 107. Prerequisite for advanced speech courses. A study of oral communication principles, including verbal and nonverbal language, listening, group dynamics, and public speaking. Emphasis in this course is upon the application of these principles to contemporary problems and upon the preparation of different types of oral discourse.

SPCH 107 Speech Communication: Principles and Practice (3) Not open to students who have completed SPCH 100. Credit will be granted for only one of the following: SPCH 100 or SPCH 107. A study of and practice in oral communication, including principles of interviewing, group discussion, listening, informative briefings, and persuasive speeches.

SPCH 125 Introduction to Interpersonal Communication (3) Concepts of interpersonal communication including perception, language and meaning, nonverbal communication, listening and feedback.

SPCH 170 Foundations of Listening (3) Role, process, and levels of listening behavior and the development of listening skills.

SPCH 200 Advanced Public Speaking (3) Prerequisite: SPCH 100 or SPCH 107 or permission of department. Rhetorical principles and models of speech composition in conjunction with the preparation and presentation of specific forms of public speaking.

SPCH 220 Small Group Discussion (3) Principles, methods and types of interaction occurring in small groups with an emphasis on group discussion and decision-making.

SPCH 222 Interviewing (3) Prerequisite: permission of department. Speech principles and practices basic to recognized types of interviews, giving special attention to behavioral objectives and communication variables involved in the process of interviewing.

SPCH 230 Argumentation and Debate (3) A study of the fundamental principles of reasoning, analysis, and evidence preparation of debate briefs and presentation of standard academic debate.

SPCH 250 Introduction to Speech Communication Inquiry (3) An introduction to the field of speech communication. Definitions, models, and contexts of communication; rhetorical theory and rhetorical criticism of discourse.

SPCH 324 Communication and Gender (3) The creation of images of male and female, and masculine and feminine, through communication, the differences in male and female communication behaviors and styles, and the implications of those images and styles for male-female transactions.

SPCH 330 Argumentation in Society (3) Contemporary theories of argument with special emphasis on the role of argument in dispute resolution and social influence.

SPCH 340 Oral Interpretation (3) Examination of ways that performance studies can be used to make critical responses to forms of literature.

SPCH 350 Foundations of Communication Theory (3) Theories of human communication including intrapersonal, interpersonal, language behavior, nonverbal communication, small group communication and mass media.

SPCH 360 The Rhetoric of Black America (3) An historical-critical survey of the rhetoric of Black Americans from the colonial period to the present.

SPCH 383 Urban Communication (3) A study of communication variations in the urban setting with emphasis on communication problems encountered in ethnic relations. Strategies for improving communication.

SPCH 399 Honors Thesis (3) Nine hours of laboratory per week. Prerequisite: permission of department. For SPCH majors only. Repeatable to 6 credits.

SPCH 400 Research Methods in Speech Communication (3) Prerequisites: SPCH 250 and an introductory course in statistics. Philosophy of scientific method; role of theory; research ethics; empirical research methods (measurement, sampling, design, analysis).

SPCH 401 Foundations of Rhetoric (3) Prerequisite: SPCH 250. Principles and approaches to the theory, criticism, and historical understanding of rhetorical discourse.

SPCH 402 Communication Theory and Process (3) Recommended: SPCH 250. Philosophical and conceptual analysis of speech communication theories.

SPCH 420 Theories of Group Communication (3) Prerequisite: SPCH 400 or permission of department. Current theory, research and techniques regarding small group process. Group dynamics, leadership and decision-making.

SPCH 423 Communication Processes in Conferences (3) Prerequisite: one course in speech communication or permission of department. Group participation in conferences, methods of problem solving, semantic aspects of language, and the function of conferences in business, industry and government settings.

SPCH 424 Communication in Complex Organizations (3) Prerequisite: SPCH 400 or permission of

department. Structure and function of communication within organizations: organizational climate and culture, information flow, networks and role relationships.

SPCH 435 Theories of Interpersonal Communication (3) Prerequisite: SPCH 400 or permission of department. Major theoretical approaches and research trends in the study of interpersonal communication.

SPCH 450 Classical and Medieval Rhetorical Theory (3) Prerequisite: SPCH 401 or permission of department. A systematic inquiry into the rhetorical theory of the classical and medieval periods. Aristotle, Cicero, Quintilian, Martianus Capella, Aurelius Augustine, Alberic of Monte Cassino, Geoffrey of Vinsauf, and Robert of Basevorn.

SPCH 451 Renaissance and Modern Rhetorical Theory (3) Prerequisite: SPCH 450 or permission of department. Survey of rhetorical theory in the renaissance and modern periods-- especially in Britain. Wilson, Sherry, Rainolde, Ramus, Bacon, Campbell, Blair, and Whately.

SPCH 453 Rhetorical Foundations of American Socio-Political Life (3) Rhetorical potential of language forms and strategic discourse to create, perpetuate, and alter patterns of political and cultural behavior. The influence of historical and contemporary American political and cultural discourse on American society.

SPCH 455 Speechwriting (3) Prerequisite: SPCH 401 or permission of department. Rhetorical principles of speech composition through study of model speeches and through a practicum in speech writing. Emphasis on the application of research in speech writing to various forms and styles of speeches.

SPCH 460 American Public Address 1635-1900 (3) Prerequisite: SPCH 401 or permission of department. Rhetorical development of major historical movements and influential speakers from 1635-1990. Emphasis on religious movements, the American Revolution, rhetoric leading up to the Civil War, and the rhetoric of the imperialist and populist movements.

SPCH 461 American Public Address in the 20th Century (3) Prerequisite: SPCH 401 or permission of department. Rhetorical movements and influential speakers from 1900 to the present. Focus on the themes and rhetorical strategies that characterize contemporary rhetorical discourse.

SPCH 462 British Public Address (3) Prerequisite: SPCH 401 or permission of department. A biographical, textual and critical-rhetorical study of select British speakers and their influence.

SPCH 470 Theories of Listening (3) Listening process with emphasis on functional analysis of listening behavior.

SPCH 471 Public Communication Campaigns (3) Prerequisite: SPCH 200 or permission of department. Diffusion theory and its implications for public communication campaigns.

SPCH 472 Theories of Nonverbal Communication (3) Prerequisite: SPCH 400 or permission of department. Nonverbal communication in human interaction theory and research on proxemics, kinesics and paralanguage as expression of relationship, affect and orientation within and across cultures.

SPCH 475 Theories of Persuasion (3) Prerequisite: SPCH 400 or permission of department. Bases of persuasion with emphasis on recent experimental developments in persuasion.

SPCH 476 Theories of Language and Communication (3) A theoretical investigation of speech as significant behavior. Language, linguistic knowledge, meaning, intention, and understanding, as they relate to communication and communication competence.

SPCH 477 Discourse Analysis (3) Concepts of textual and discourse analysis applied to speech situations.

SPCH 478 Speech Communication Colloquim (1) Repeatable to 4 credits. Current trends and issues in the field of speech communication, stressing recent research methods. Recommended for senior and graduate student majors and minors in speech communication.

SPCH 482 Intercultural Communication (3) Prerequisite: SPCH 400 or permission of department. The major variables of communication in an intercultural context: cultural, racial and national differences; stereotypes; values; cultural assumptions; and verbal and nonverbal channels.

SPCH 489 Topical Reseerch (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Individualized research projects conducted with a faculty sponsor.

SPCH 498 Seminar (3) Prerequisite: permission of instructor. Senior standing. Present-day speech research.

STAT — Statistics and Probability

STAT 100 Elementary Statistics and Probability (3) Prerequisite: permission of Math Department based on satisfactory score on Math placement exam or MATH 110 or MATH 115. Not open to students who have completed MATH 111 or any MATH or STAT course with a prerequisite of MATH 141. Credit will be granted for only one of the following: MATH 111 or STAT 100. Simplest tests of statistical hypotheses; applications to before-and-after and matched pair studies. Events, probability, combinations, independence. Binomial probabilities, confidence limits. Random variables, expected values, median, variance. Tests based on ranks. Law of large numbers, normal approximation. Estimates of mean and variance.

STAT 400 Applied Probability and Statistics I (3) Prerequisite: MATH 141. Not acceptable toward graduate degrees in STAT, MAPL, or MATH. Credit will be granted for only one of the following: STAT 400 or ENEE 324. Random variables, standard distributions, moments, law of large numbers and central limit theorem. Sampling methods, estimation of parameters, testing of hypotheses.

STAT 401 Applied Probability and Statistics II (3) Prerequisite: STAT 400. Point estimation - unbiased and consistent estimators. Interval estimation. Minimum variance and maximum likelihood estimators. Testing of hypotheses. Regression, correlation and analysis of variance. Sampling distributions. Elements of non-parametric methods. (Not acceptable toward graduate degrees in STAT, MAPL, or MATH.)

STAT 410 Introduction to Probability Theory (3) Prerequisite: MATH 240; and MATH 241. Probability and its properties. Random variables and distribution functions in one and several dimensions. Moments. Characteristic functions. Limit theorems.

STAT 411 Introduction to Stochestic Processes (3) Prerequisite: STAT 400. Elementary stochastic processes. Renewal process, random walks, branching process, discrete Markov chains, first passage times, Markov chains with a continuous parameter, birth and death processes. Stationary processes.

STAT 420 Introduction to Statistics (3) Prerequisite: STAT 410 or equivalent. Point estimation, sufficiency, completeness, Cramer-Rao inequality, maximum likelihood. Confidence intervals for parameters of normal distribution. Hypotheses testing, most powerful tests, likelihood ratio tests. Chi-squared tests, analysis of variance, regression, correlation. Nonparametric methods.

STAT 440 Sampling Theory (3) Prerequisite: STAT 401 or STAT 420. Simple random sampling. Sampling for proportions. Estimation of sample size. Sampling with varying probabilities. Sampling: stratified, systematic, cluster, double, sequential, incomplete.

STAT 450 Regression and Analysis of Variance (3) Prerequisite: STAT 401 or STAT 420. One, two, three and four-way layouts in analysis of variance, fixed effects models, linear regression in several variables, Gauss-Markov Theorem, multiple regression analysis, experimental designs.

STAT 464 Introduction to Biostatistics (3) Prerequisite: one semester of calculus. 56 semester hours. Junior standing. Probabilistic models. Sampling. Some applications of probability in genetics. Experimental designs. Estimation of effects of treatments Comparative experiments. Fisher-Irwin test. Wilcoxon tests for paired comparisons. Not acceptable for credit towards degrees in mathematics or statistics.

STAT 498 Selected Topics in Statistics (1-6) Prerequisite: permission of department. Repeatable to 16 credits. Topics of special interest to advanced undergraduate students will be offered occasionally under the general guidance of the MATH/STAT major committee. Students register for reading in statistics under this number.

TEXT — Textiles

TEXT 105 Introduction to Textiles (3) An introduction to textile consumer products; their structure and properties, with emphasis on the structure of apparel fabrics.

TEXT 205 Textile Materials and Performance (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: TEXT 105. Recommended: prior or concurrent registration in CHEM 103. Credit will be granted for only one of the following: TEXT 150 or TEXT 205. Formerly TEXT 150. Analysis of the structural components of consumer textile materials with emphasis on yarns, fibers, dyes and finishes as they relate to textile performance in consumer use.

TEXT 221 Apparel I (3) Two hours of lecture and two hours of laboratory per week. A study of the fundamental principles and processes of pattern design and apparel construction. The relation of commercial patterns and construction techniques to apparel design problems.

TEXT 222 Apparel II (3) Prerequisite: TEXT 221. Apparel design through the flat pattern method. Development of portfolios as well as full scale fashion design projects from original patterns. Emphasis on successful integration of pattern design with construction processes in contemporary fabrics.

TEXT 235 Computer Applications in Textiles (3) Two hours of lecture and two hours of laboratory per week. For TEXT majors only. Background and introduction to the use of personal computers in textiles. Needs of higher level courses utilizing computers in instruction will be addressed.

TEXT 298 Special Topics (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Topics of special interest to lower division students under the guidance of department faculty.

TEXT 300 Professional Development (1) A series of lectures focused on career options, career preparation and professional development for majors in textiles and consumer economics.

TEXT 305 Textile Materials: Evaluation and Characterization (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: TEXT 205. An investigation of the behavior of textile materials in relation to environmental factors and conditions of service influencing performance, comfort and aesthetics. Laboratory experience provides an opportunity to explore a variety of textile materials and methods of evaluation.

TEXT 345 History of Costume I (3) The development of ancient and Non-Western forms of dress, including Greek, Roman, Early European, Middle Eastern, Far Eastern and African costume. Emphasis on clothing as an expression of culture and as an indicator of cultural change.

TEXT 347 History of Costume II (3) The development of European and American dress from the Renaissance to the present, relating the history of costume to changing technology, social attitudes and trends in the popular and fine arts.

TEXT 355 Textile Furnishings (3) Prerequisite: TEXT 205. The performance of textile furnishings, including both the residential and contract-commercial markets. The selection, material properties, specifications, use and care of textile furnishings. Carpet and floor coverings, upholstered furniture, draperies and window coverings, wall coverings, bedding and mattresses, and domestic textiles.

TEXT 363 History of Textiles (3) A study of historic and contemporary fibers and fabrics. The analysis of designs and techniques of decorating fabrics and the relationship of textiles to the aesthetic and developmental cultures of society.

TEXT 365 Fashion Merchandising (3) Prerequisite: permission of department. Analysis of fashion trends and their effect on retail merchandising. Emphasis on the buying and selling process, including the calculations necessary to plan and estimate seasonal pur-

chases, mark-ups, turnover, open-to-buy, markdowns and stocksales ratios.

TEXT 375 Economics of the Textile and Apparel Industry (3) Prerequisites: ECON 201; and ECON 203. Trends in the production and consumption of textiles and apparel; economic analysis of the textile and apparel industries; factors affecting changes in output, price, location and market structure.

TEXT 385 Junior Honors Seminar (1) Junior standing in departmental honors program. Readings, reports and discussion of selected topics.

TEXT 388 Field Work and Analysis in Textiles (3-12) Prerequisite: permission of department. For TEXT majors only. Repeatable to 12 credits. Supervised, professional, field work experience in retailing, industry or government. A seminar and a written critique of the field work experience will be required to relate formal academic study to student work experiences. Students must apply a semester in advance.

TEXT 400 Research Methods (3) Prerequisite: MATH 110 or MATH 115. Not open to students who have completed CNEC 400 or BMGT 230. Research methodology in textiles and consumer economics, with particular emphasis on the application of statistical concepts and techniques to the analysis of data from the areas of textiles and consumer economics.

TEXT 420 Apparel Design: Draping (3) Six hours of laboratory per week. Prerequisites: APDS 101 or ARTT 100; and TEXT 222. Recommended: ARTT 110. Students explore pattern design through draping on the human form. Emphasis is on the interrelationship between material, design and form.

TEXT 425 Advanced Apparel Design (3) Six hours of laboratory per week. Prerequisites: APDS 101 or ARTT 100; TEXT 305 and TEXT 222. The integration of apparel design skills and principles in solving problems in apparel production, merchandising, and in clothing for special needs.

TEXT 430 Portfolio Presentation (3) Six hours of laboratory per week. Prerequisites: {TEXT 420; and TEXT 425} or permission of department. Senior standing. For TEXT majors only. Problems of apparel design and professional presentation of solutions.

TEXT 435 Woven Fabric Structures and Design (3) Two hours of lecture and three hours of laboratory per week. Prerequisite: TEXT 235. Senior standing. For TEXT majors only. Use of computers to study the construction and combination of simple and complex weaves, the structures of standard classes of cloths and the application of color to woven fabrics.

TEXT 441 Clothing and Human Behavior (3) Prerequisites: PSYC 100; and SOCY 100. An exploration of socio-psychological approaches to the study of clothing in relation to human behavior. Social and psychological theories will be examined as possible framework for the study and investigation of clothing.

TEXT 452 Textile Science: Chemical Structures and Properties of Fibers (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: CHEM 104 or permission of department. The chemical structure, properties and reactions of the major classes of natural and man-made fibers. The relationship between molecular structure and physical properties of fibers and fabrics. Laboratory includes chemical identification of fibers, preparation of selected fibers and examination of chemical reactions and properties of fibers.

TEXT 454 Textile Science: Finishes (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: TEXT 452 or permission of department. A study of the chemical reactions and mechanisms involved in imparting water repellance, crease resistance and crease recovery properties, shrink-resistance, flame resistance, soil-release properties and moth and mildew resistance to textile materials. Properties of the finished material which affect its end-use. The application of finishes, identification of finishes and a study of the properties of finished fabrics.

TEXT 456 Textile Science: Dyes and Dye Application (3) Two hours of lecture and four hours of laboratory per week. Prerequisite: TEXT 452 or permission of department. Examination of the principles and techniques of dyeing and printing of textile materials. Properties of the finished products which affect their end-use.

TEXT 470 Textile and Apparel Marketing (3) Prerequisite: BMGT 350 or permission of department. Analysis of the production, pricing, distribution, and promotion of fibers, yarns, fabrics and textile products by end use. Identification of target markets and development of marketing strategies. Application of case study method to problems of textile and apparel firms.

TEXT 488 Senior Honors Thesis (1-4) For undergraduate students in the departmental honors program only. An independent literary, laboratory or field study, conducted throughout the student's senior year. Student should register in both fall and spring.

TEXT 498 Special Studies (2-4) Independent study by an individual student or by a group of students in advanced work not otherwise provided in the department. Students must prepare a description of the study they wish to undertake. The plan must be approved by the faculty directing the study and the department chairman.

THET—Theatre

THET 110 Introduction to the Theatre (3) Introduction to the people of the theatre; actors, directors, designers and backstage personnel. The core and characteristics of a play script; theatrical forms and styles; and theatre history.

THET 111 Making Theatre: Art and Scholarship (3) Prerequisite: THET 110 or permission of department. Systematic introduction to the tools and techniques used by theatre practitioners.

THET 120 Acting I (3) Two hours of lecture and two hours of laboratory per week. Prerequisite: THET 110 or permission of department. Basic principles of acting techniques. Exercises structured to develop the student's concentration, imagination, sense and emotional memory. Textual analysis, character analysis and scene study; and the application of these techniques to character portrayal through performance of short scenes.

THET 170 Stagecraft (3) A survey of the fundamentals of theatrical productions, with emphasis in the construction of scenery. Practice work on University Theatre and experimental theatre productions.

THET 185 Makeup (2) Prerequisite: permission of department. The theory and practice of stage makeup covering character analysis, facial anatomy, application of makeup and period styles in theatrical makeup.

THET 221 Speech For the Stage (3) Prerequisites: THET 120 and by audition and permission of department. Development of the vocal techniques required for theatrical production including projection, resonance, and character voices. The study and acquisition of the diction of the American stage.

THET 273 Scenographic Techniques (3) Prerequisite: THET 170 and permission of department. An analysis of the graphic approaches used in various stages of planning and execution of a setting for the theatre. Study of drafting techniques, presentational conventions, and scene painting techniques unique to the theatre.

THET 310 The American Theatre (3) An analysis of the theatre people, plays, events, and social forces which shaped an evolution from the colonial beginnings of artistic dependence on England to the uniquely American theatre of today.

THET 311 Play Production (3) A practical study of the various elements and procedures necessary for production of plays for public performance.

THET 320 Acting II (3) Prerequisites: THET 111; and THET 120; and by audition and permission of department. Continuation of THET 120. Emphasis on the fundamentals of acting: personalization, objectives, and characterization.

THET 330 Play Directing I (3) Prerequisites: THET 111 and THET 120 and THET 170 and permission of department. A lecture-laboratory course dealing with the techniques of coordination, designing and guiding the production of a script through to performance. Study and practice in stage composition, movement, pacing, script and character analysis, and rehearsal routines. Emphasis on methods of communicating a script to an audience.

THET 350 American Musical Comedy (3) The evolution of musical comedy through opera to early American extravaganzas and minstrels to the musicals of the 1920's and 1930's. The development and highlights of the form since 1940. The function and form of the libretto, music and lyrics, and the roles of the creative personnel of a musical production. Workshops in performance skills.

THET 372 Stage Property Design (3) Prerequisite: permission of department. Materials and techniques for the design and execution of stage properties with special emphasis on period research, special materials, and special effects.

THET 375 Scenic Design I (3) Prerequisite: THET 273 or permission of department. A study of design theory and style. Methods and techniques of coordination on all elements of scenic design for theatre.

THET 420 Acting III (3) Prerequisites: THET 221 and THET 320 and by audition and permission of department. Emphasis on the philosophical basis and techniques necessary for acting modern realistic drama and acting period style dramas. In-depth study of Stanislavski System and application of those techniques toward performance in scenes. Examination and application of the techniques necessary for the preparation and performance of an acting score for performing Shakespeare. Improvisation. Required attendance at live theatre productions.

THET 421 Movement for Actors (3) Prerequisite: permission of department. Studies and intensive exercises to aid the acting student in understanding physical and emotional energy flow, body placement, alignment and body image. The physical aspects of character.

THET 429 Actor's Studio (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Participation in dramatic roles executed under faculty supervision in the department's productions. Eligible students must make commitments and plan performances with course instructor during pre-registration.

THET 430 Play Directing II (3) Prerequisite: THET 330 or permission of department. Discussion of the preparation procedures and rehearsal practices necessary for the presentation of a variety of theatrical styles and forms. Emphasis on understanding the relationship between the director, the actor, the script and the audience. A series of student directed scenes supplemented by attendance at theatre productions.

THET 451 Musical Comedy Workshop (3) Prerequisites: audition and permission of department. Development of the ability to move, act and express through the media of lyric and music.

THET 460 Theatre Management I (3) Prerequisites: THET 111 or permission of department. The practical tools of theatre management: production philosophies, selecting and balancing a season, tickets and box office procedures, budgeting, graphic arts production, advertising, publicity and other promotional devices.

THET 461 Theatre Management II (3) Prerequisites: THET 110 and THET 111 or permission of department. Case studies, discussions, lectures and projects concerning advanced theatre management decision making and administration, including such areas as personnel relations, contract negotiations, theatrical unions, fund raising, touring, audience development and public relations.

THET 471 Scenic Design II (3) Prerequisite: THET 375 and permission of department. Study of period styles and techniques in scenic design. Emphasis on individual projects and multi-use theatres.

THET 473 Scene Painting (3) Prerequisite: THET 170 and permission of department. Scene painting techniques and materials. Three-dimensional realistic scenery and non-realistic two-dimensional backdrops. Individual projects.

THET 474 Stage Management (3) Prerequisite: permission of department. Intensive practical study of the techniques and procedures for stage management. Independent projects dealing with the production of shows.

THET 475 Stage Decor (3) Prerequisites: THET 170 and permission of department. A study of environmental decor, ornaments and properties through the ages and their practical reproduction for a theatrical production.

THET 476 Lighting Design I (3) Prerequisite: THET 273 or permission of department. A study of the theories of electrification, instruments, design, color, and control for stage and television. Brief survey of sound for the theatre. Practical work on productions.

THET 477 Lighting Design II (3) Prerequisites: THET 476; and permission of department. Study of history and theory of lighting design. Design exercises in proscenium, in-the-round, thrust, outdoor pageant, circus, concert, spectacle, dance and television lighting. A survey of lighting companies and equipment and architectural lighting.

THET 479 Theater Workshop (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Supervised participation in the areas of assistant directing, scenic design and properties, costuming or make-up, lighting, technical theatre, stage management, sound.

THET 480 Stage Costume History and Design I (3) Basic principles of theatre costume design and introduction to rendering skills. Emphasis on development of design conception, unity, character statement, basic clothing design and period style adaptation.

THET 481 Stage Costume History and Design II (3) One hour of lecture and six hours of laboratory per week. Prerequisites: THET 480; and permission of department. An advanced study of costume design and interpretation leading to understanding and facility in design of stylized productions. Emphasis on design for musical comedy, dance theatre, opera and various non-traditional forms of theatre production.

THET 486 Stage Costume Construction I (3) Study and practical experience in garment construction and related costume crafts as used in theatre costume design. Flat pattern development, textiles, theatrical sewing techniques and organization of the costume construction process.

THET 487 Stage Costume Construction II (3) Prerequisite: THET 486 or permission of department. Study and practical experience in the construction of stage costumes, props and accessories. Pattern development by draping, millinery, corsets, masks, jewelry, armor and period footwear.

THET 490 History of the Theatre: Classical Antiquity to Mid-Seventeenth Century (3) Prerequisites: THET 110 and THET 111 or permission of department. Evolution of the theatre from primitive origins, through the early Renaissance with emphasis on playwrights and plays, theatre architecture and decor, and significant personalities. Extensive use of graphic material, play reading, related theatre-going.

THET 491 History of the Theatre: Late Seventeenth to Mid-Nineteenth Century (3) Prerequisite: THET 111 or permission of department. Trends in drama and theatrical production from the late Renaissance to Ibsen.

THET 492 History of Theatre: Late Nineteenth Century to the Present (3) Prerequisite: THET 111 or permission of department. Trends in drama and theatrical production from Ibsen to the present.

THET 495 History of Theatrical Theory and Criticism (3) The development of theatrical theory and criticism from the Greeks to the modern theorists. The philosophical basis of theatre as an art form. Important theorists and the practical application of their theories in either play scripts or theatrical productions. Required attendance at selected live theatre productions.

THET 499 Independent Study (1-3) Prerequisite: permission of department. Repeatable to 6 credits. An independent study course in which each student completes an assigned major theatre project under close faculty supervision. Projects may culminate with term papers, scenic or costume designs, or a stage production.

UMEI — Maryland English Institute

UMEI 001 English as a Foreign Language: Beginning (12) 25 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has little or no previous knowledge of English. Focus on the rapid acquisition of the basic features of English grammar and pronunciation and on speaking and understanding American English; reading and writing appropriate to the level will be included. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 002 English as a Foreign Language: Intermediate I (12) 25 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has had some previous instruction in English. Emphasis on improving listening and speaking skills, on mastering intermediate grammatical structures, and on expanding vocabulary. Includes practice in Reading and writing appropriate to the level. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 003 English as a Foreign Language: Intermediate II (12) 25 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has mastered the essential structures of English grammar. Emphasis on improving communicative skills for a wide range of linguistic situations, on rapid expansion of vocabulary, and on improving reading comprehension and basic writing skills. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 004 English as a Foreign Language: Intermediate III (12) 25 hours of discussion/recitation per week. Intensive course for the non-native speaker of English who has a good command of the basic features of spoken and written English. Emphasis on refining speaking and listening skills, on improving reading speed and comprehension of academic texts, and on developing writing skills for academic courses. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 005 Advanced English as a Foreign Language (6) 12 hours of discussion/recitation per week. Semi-intensive course for the nearly proficient non-native speaker of English needing additional language instruction prior to undertaking full-time academic study. Speaking and listening skills; improvement of reading speed and comprehension; and development of writing skills with special emphasis on research skills and use of the University library. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 006 English Pronunciation (1) Two hours of discussion/recitation per week. Individualized class for the non-native speaker of English. Diagnosis of individual pronunciation problems. Practice in the correct pronunciation of English sounds and improvement of ability to speak English with proper stress and intonation patterns. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

UMEI 007 Advanced Writing for International Students (3) Open to both graduate and undergraduate students. Special fee. This course does not carry credit towards any degree at the University and does not count in the rentention plan. A writing skills course for the non-native speaker of English with a good command of spoken English.

UMEI 008 Advanced Oral Communication Skills (1) Four hours of discussion/recitation per week. Prerequisite: permission of department. For advanced non-native speakers of English. Practice in speaking skills relevant to the academic situation. Improvement of speaking skills for various classroom activities such as participating in discussions, making appointments with professors, asking for information and presenting oral reports. Special fee required for this course. This course does not carry credit towards any degree at the University and does not count in the retention plan.

URSP — Department of Urban Studies and Planning

URSP 100 Introduction to Urban Studies and Planning (3) Formerly URBS 100. Contemporary urban patterns, trends and problems. Major urban issues, such as: population change, the economy, land use, housing, neighborhood development, fiscal and unemployment crises, and social, environmental, and political controversies of metropolitan areas. International urbanization patterns and policies.

URSP 240 Introduction to Urban Research (3) Prerequisite: URSP 100. Formerly URBS 240. Sources of data for study of urbanization and urban problems. Basic methods of data analysis and description of urban patterns, and trends in population, development housing, employment and government in urban areas. Graphic presentation of data. Basic methods of projecting and forecasting, including use of models.

URSP 320 The Social and Technological City (3) Prerequisite: URSP 240. Credit will be granted for only one of the following: URSP 320, URBS 220, or URBS 320. Formerly URBS 320. The impact of environment and technology on urban living. The metropolis as a physical structure, including its housing, land use and geography, engineering, transportation and utilities. Public policy issues of technology in the urban areas.

URSP 397 Honors Independent Reading (3) Prerequisite: admission to honors program in URSP or other departments. Formerly URBS 397. Directed reading in contemporary urban studies.

URSP 399 Independent Study (1-3) Prerequisite: one URSP course and permission of department. Junior standing. Repeatable to 6 credits if content differs. Formerly URBS 399. Directed research and study of selected aspects of urban affairs.

URSP 401 Seminar in Urban Problems and Policy (3) Prerequisite: URSP 320. Senior standing. For URSP majors only. Formerly URBS 401. In-depth reading course on topics selected by instructor. Emphasis on depth rather than breadth of knowledge. Introduction to the nature of the research process.

URSP 402 Senior Capstone: Urban Theory and Practice (3) Prerequisite: URSP 401. Senior standing. For URSP majors only. Formerly URBS 402. Research course. Students apply disciplinary background to an urban problem or policy topic selected by the instructor. Emphasis on synthesis of the educational experience and application of knowledge to a real world situation.

URSP 410 The Development of the American City (3) Prerequisite: permission of department. Formerly URBS 410. History of urban policy and city planning in the U.S. Response to changing definitions of urban problems and political issues. Changes in technology, interests, and theories of planners and policy makers.

URSP 438 Urban Honors Internship (1-6) Prerequisite: URSP 320 and 3.5 GPA by end of junior year. Senior standing. For URSP majors only. Repeatable to 6 credits if content differs. Formerly URBS 438. Senior level experience for select numbers of urban studies majors. Field experience in urban studies organizational settings. Class meetings, written reports and instructor conferences.

URSP 470 Management and Administration of Metropolitan Areas (3) Formerly URBS 470. Management and administration of local governments in metropolitan areas with emphasis on cities, counties and special districts in urban areas. Urban governmental organizations, management styles and service delivery. Contemporary problems confronting urban local governments.

URSP 488 Selected Topics in Urban Studies and Planning (1-3) Prerequisite: permission of department. Repeatable to 6 credits if content differs. Formerly URBS 488. Topics of special interest to advanced urban studies students.

URSP 498 Honors Seminar (3) Prerequisite: admission to honors program in URSP and other departments. Junior standing. Repeatable to 6 credits if content differs. Formerly URBS 498. Individual reading and research, and group discussion dealing with selected major contemporary urban issues.

URSP 499 Honors Thesis (3-6) Prerequisite: admissions to honors program in URSP or other departments. Formerly URBS 499. Individual reading and research, and the writing of an original paper on an urban topic of the student's choice under the guidance of a faculty member.

WMST — Women's Studies

WMST 200 Introduction to Women's Studies: Women and Society (3) An interdisciplinary study of the status, roles, and experiences of women in soci-

ety. Sources from a variety of fields such as literature, psychology, history, and anthropology, focusing on the writings of women.

WMST 250 Introduction to Women's Studies: Women, Art and Culture (3) An examination of women's creative powers as expressed in selected examples of music, film, art, drama, poetry, fiction, and other literature. Explores women's creativity in relation to families, religion, education, ethnicity, class, sexuality, and within a cultural tradition shaped by women.

WMST 350 Feminist Education Practicum (3) Prerequisite: permission of department. Corequisite: WMST 351. Teaching practicum, providing experience in the facilitation of small sections of lower division introductory survey courses.

WMST 351 Feminist Education Analysis (3) Prerequisite: permission of department. Corequisite: WMST 350. General application of feminist methodology to teaching and communication skills, teaching strategies, motivation, classroom dynamics and knowledge of students' development and learning styles.

WMST 400 Theories of Feminism (3) Prerequisite: WMST 200 or WMST 250. A study of the multiplicity of feminist theories which have been developed to explain women's position in the family, the workplace, and society. Major feminist writings are considered in the context of their historical moment and in the context of the intellectual traditions to which they relate.

WMST 490 Feminist Reconceptualizations (3) Prerequisite: WMST 200 or WMST 250; and WMST 400. Focuses on the ways in which feminist thinking not only changes the content of the various disciplines by including woman as subject, but also leads us to alter the questions we ask, the methods we use, and the ways we come to learn, know and teach. Explorations will be centered around a specific integrative theme.

WMST 498 Special Topics in Women's Studies (1-6) Prerequisite: a course on women (ideally WMST 200) or permission of department. Repeatable to 9 credits if content differs.

WMST 499 Independent Study (1-3) Prerequisite: Three credits in women's studies courses and permission of department. Research and writing or specific readings on a topic selected by the student and supervised by a faculty member of the Women's Studies Program.

ZOOL— Zoology

The following courses may involve the use of animals. Students who are concerned about the use of animals in teaching have the responsibility to contact the instructor, prior to course enrollment, to determine whether animals are to be used in the course, whether class exercises involving animals are optional or required and what alternatives, if any, are available.

ZOOL 181 Life in the Oceans (3) Prerequisite: an introductory course in biological principles. Consideration of major groups of animals and plants in various marine environments and humanity's potential uses and misuses of the ocean. Not accepted for credit towards the zoology major.

ZOOL 201 Human Anatomy and Physiology I (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: BIOL 105 or equivalent. Anatomy and physiology of the skeletal, muscular, neural, endocrine, and sensory systems. Not accepted as credit toward the zoology major.

ZOOL 202 Human Anatomy and Physiology II (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: ZOOL 201 or permission of department. Anatomy and physiology of the cardiovascular, respiratory, immune, digestive, urinary and reproductive systems. Not accepted as credit toward the zoology major.

ZOOL 210 Animal Diversity (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: BIOL 106. Comparative study of the diversity of animal form and function, including analysis of structures and mechanisms which different organisms utilize to cope with similar requirements of life.

ZOOL 211 Cell Biology and Physiology (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: BIOL 105; and CHEM 103. Biochemical and physiological mechanisms underlying cellular function. Properties of cells which make life possible and mechanisms by which cells provide energy, reproduce, and regulate and integrate with each other and their environment.

ZOOL 299 Supplemental Study in Zoology (1-3) Prerequisite: permission of department. Repeatable to 6 credits. Research or special study to complement a course taken previously which is not fully equivalent to current departmental requirements. Credit according to work done.

ZOOL 301 Biological Issues and Scientific Evidence (3) Prerequisite: BIOL 105. The process of scientific inquiry in biology, using as models two areas in which scientific data of social importance is subject to widely differing interpretations: (1) evolution vs. creationism; (2) measurement of human intelligence. The provisional nature of scientific truth. Evolution and creation-science viewpoints. Intelligence testing is viewed from a historical perspective of its origins in 19th century craniometry and the subsequent development of intelligence tests.

ZOOL 308 Honors Seminar (1) Prerequisite: participation in honors program. Repeatable to 4 credits. Guided discussion of topics of current interest.

ZOOL 309 Honors Independent Study (1-4) Prerequisite: participation in the honors program. Repeatable to 12 credits. Study of classical material by way of guided independent study and laboratory experiments.

ZOOL 312 The Biology of Conservation and Extinction (3) Prerequisite: BIOL 106. Ecology, evolutionary biology and paleontology will be applied to the study of conservation, species invasions and extinction.

ZOOL 313 Women and Science (3) Prerequisite: one science course. Participation in and contribution of women to the sciences. Influence of self-images and societal expectations on women's participation, intersection of scholarship with science. ZOOL 313 is not accepted for credit for any major in the Life Sciences.

ZOOL 318 Honors Research (1-2) Prerequisite: participation in the honors program. Repeatable to 8 credits. A laboratory research problem; required each semester during honors participation and culminating in a honors thesis.

ZOOL 319 Special Problems in Zoology (1-2) Prerequisite: a major in zoology or biological sciences, a minimum of 3.0 GPA in the biological sciences. Repeatable to 8 credits if content differs. Research or integrated reading in zoology.

ZOOL 323 Brain and Behavior (3) Prerequisite: BIOL 105. Not acceptable toward ZOOL or BIOL major. Credit will be granted for only one of the following: ZOOL 323 or PSYC 402. Current knowledge of the neurobiological basis of socially relevant behaviors such as: drug abuse, mental illness, and amnesia.

ZOOL 326 Biology of Reproduction (3) Prerequisite: BIOL 105 or permission of department. The biology of the reproductive system with emphasis on mammals and, in particular, on human reproduction. Hormone actions, sperm production, ovulation, sexual differentiation, sexual behavior, contraception, pregnancy, lactation, maternal behavior and menopause.

ZOOL 328 Selected Topics in Zoology (1-4) Repeatable to 6 credits if content differs. Lectures, seminars, mini-courses and other special instruction in various zoological subjects.

ZOOL 346 Human Genetics and Society (3) Prerequisite: two college courses in the natural sciences and/or mathematics. For non-biological science students seeking an understanding of genetics, especially as it relates to humans and the decisions they may have to make as individuals and members of society. Study of genes, their mutation and transmittal, and the effect of recent discoveries on present and future generations. Not accepted for credit towards the zoology or general biological sciences and general biological sciences majors.

ZOOL 368 Laboratory Techniques in Behavioral Endocrinology (2-4) One hour of lecture and six hours of laboratory per week. Pre- or corequisite: ZOOL 326 or permission of department. Repeatable to 4 credits if content differs. Techniques for analyzing physiological bases of behavior under lab and semi-natural conditions including handling and rearing of animals, surgical techniques and direct, video, and computer-assisted behavioral observations.

ZOOL 375 Biological Oceanography (3) Prerequisites: BIOL 106 and ZOOL 210. Fundamentals of biological processes in the world's oceans; emphasizes ecology of marine organisms and how ocean chemistry and ocean circulation influence biological processes such as production, dispersal, and food chain dynamics.

ZOOL 381 Natural History of the Chesapeake Bay (3) Three lectures per week and at least one Saturday field trip. Prerequisite: a course in biological sciences or permission of department. Consideration of the major groups of organisms associated with the Chesapeake Bay and current issues that determine human's present and future uses for the Chesapeake and its biota. Not accepted as credit for the zoology major.

ZOOL 384 Aquatic Biology (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: BIOL 106, and ZOOL 210. Formerly ZOOL 480. Basic concepts of freshwater and marine biology. Relationship of animals to their environment.

ZOOL 396 Biology of Extinct Animals (3) Prerequisite: BIOL 106 or permission of department. Recommended: ZOOL 210. A survey of extinct animals that have few, if any, direct living descendants. The principles governing the functional design of animals will be used to infer life styles for extinct, and frequently bizarre, organisms.

ZOOL 411 Cell Biology (4) Three hours of lecture and four hours of laboratory per week. Prerequisites: (ZOOL 211; and CHEM 233) or permission of department. The molecular and biochemical basis of cell structure and of integrated functions of the subcellular organelles, with an emphasis on eukaryotes.

ZOOL 413 Biophysics (3) Prerequisite: ZOOL 211; and (PHYS 122 or PHYS 142); and (MATH 140 or MATH 220). An introduction to the ideas and methods used in biophysics to analyze the functional components of cells and tissues as physical-chemical systems.

ZOOL 415 Cell Differentiation (3) Prerequisite: ZOOL 211 or BIOL 222. The processes by which cells become differentiated from each other during development, with an emphasis on the biochemical and ultrastructural mechanisms of these changes.

ZOOL 416 Biology of Cancer (3) Prerequisites: ZOOL 211; and (MICB 200 or a course in biochemistry). Causes and consequences of neoplastic transformations at the biochemical and cellular levels.

ZOOL 421 Neurophysiology (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: ZOOL 211; and CHEM 233; and PHYS 122. The physiology of nerves, muscles and sensory receptors and aspects of central nervous system physiology.

ZOOL 422 Vertebrate Physiology (4) Three hours of lecture and three hours of laboratory per week. Prerequisite: ZOOL 211 and one semester of organic chemistry or permission of department. A study of the cardiovascular, hemopoietic, gastrointestinal, renal and respiratory systems. Chemical and endocrine regulation of physiological functions in higher vertebrates with emphasis on mammals.

ZOOL 425 Computer Simulation and Modeling of Biological Systems (4) Prerequisite: permission of department. Students will be expected to have a 300-400 level majors course in BCHM, BOTN, ENTM, MICB or ZOOL, and one semester of calculus. No prior knowledge of computers or programming required. The use of computers as creative research tools in biology to study compartmental analysis, biological oscillations, chaos, fractals, and cellular automata.

ZOOL 426 General Endocrinology (3) Prerequisites: ZOOL 211; and CHEM 233; and CHEM 243. Functions and the functioning of the endocrine glands of animals with special reference to the vertebrates.

ZOOL 430 Developmental Biology (3) Prerequisite: ZOOL 211 or BIOL 222. Structural, functional and regulatory events and mechanisms that operate during development

to produce an integrated, multicellular organism composed of a multitude of differentiated cell types.

ZOOL 440 Evolution (3) Prerequisites: BIOL 106; and BIOL 222. A consideration of current thought in regard to the evolution of living organisms.

ZOOL 441 Molecular Evolution (3) Prerequisite: BIOL 222 (genetics) or permission of department. Patterns of DNA sequence variation within and between species, caused by nucleotide changes and the movement of transposable elements. Theories of molecular evolution, such as the neutral theory. Molecular clock' hypothesis: its importance as a practical empirical tool in molecular genetics and systematics and its theoretical foundation.

ZOOL 446 Molecular Genetics (3) Prerequisites: a course in genetics (e.g. BIOL 222) and CHEM 233. The molecular basis of gene structure and function. Regulation of differential gene expression.

ZOOL 452 Recombinant DNA (3) Prerequisite: ZOOL 211 or BIOL 222 or MICB 380. An advanced course presenting the tools and procedures of genetic engineering. Theory and practical applications of recombinant DNA techniques to understanding eukaryotic gene structure and expression.

ZOOL 455 General Immunology (3) Prerequisites: ZOOL 211; BIOL 222. Credit will be granted for only one of the following: ZOOL 455 and MICB 450. Basic principles of immunobiology, immunochemistry and immunogenetics with emphasis on the cellular and molecular basis of the immune response: cells of the immune system and their development, interactions and physiologic environment; the antibody response and interaction with antigen; cell mediated immunity; genetic regulation of the immune response; and the relationship of the immune system to disease.

ZOOL 460 Ethology (3) Prerequisites: BIOL 106; and BIOL 222. Study of animal behavior with emphasis on its evolution and function. Topics include: communication, foraging, cooperation and mate selection.

ZOOL 461 Ethology Laboratory (3) One hour of lecture and six hours of laboratory per week. Pre- or corequisite: (ZOOL 460 or ZOOL 465) or permission of department. Training in the description of behavior, methods of quantification and experimentation, and the mathematical treatment of behavioral data.

ZOOL 465 Behavioral Ecology (3) Prerequisites: BIOL 106; and (ZOOL 210 or BIOL 222) or permission of department. How natural and social environments shape individual behavior. The influence of evolution on patterns of individual adaptation. Use of the evolutionary paradigm to investigate specific problems in animal and human behavior.

ZOOL 468 Experimental Behavioral Endocrinology (2) One hour of lecture and six hours of laboratory per week. Prerequisite: ZOOL 368 or permission of department. Repeatable to 4 credits.

ZOOL 470 Advanced Animal Ecology (2) Prerequisites: BIOL 106; and MATH 220; and a course in statistics. Theory of population growth and regulation, life tables and population projection theory of competition and predation, diversity analysis and island geography. Emphasis on current literature and research in ecological theory.

ZOOL 471 Laboratory and Field Ecology (2) Four hours of laboratory and field work per week. Pre- or corequisite: ZOOL 470. Laboratory and field exercises involving problems of contemporary ecological interest; population density regulation, community structure, and spatial pattern diversity in both terrestrial and aquatic systems. Topics coordinated with those presented in ZOOL 470.

ZOOL 472 Protozoology (4) Prerequisite: one year of biology. Two hours of lecture and six hours of laboratory including field trips per week. Basic conceptual treatment of free-living and parasitic protozoan functional morphology, life history, and systematics. The laboratory will stress observations of protozoa, living and stained, collected from diverse habits.

ZOOL 473 Marine Ecology (3) Prerequisite: ZOOL 210. Courses in evolution and animal behavior are strongly recommended. A detailed analysis of the evolutionary ecology of marine invertebrates; emphasis on testing of theories and on current literature.

ZOOL 477 Symbiology (3) Prerequisite: ZOOL 210. An introduction to basic concepts of symbiosis, with emphasis on coevolution between symbiotic organisms. Adaptations for establishment and maintenance of mutualistic, commensal and parasitic associations. Emphasis on current literature and a research perspective.

ZOOL 481 The Biology of Marine and Estuarine Invertebrates (4) Two hours of lecture and six hours of laboratory per week. Prerequisite: one year of zoology including ZOOL 210 or equivalent. A study of the taxonomy and functional morphology of the invertebrates, exclusive of insects. Emphasis on the study of living material.

ZOOL 482 Marine Vertebrate Zoology (4) Two hours of lecture and six hours of laboratory per week. Prerequisite: two hours of zoology including ZOOL 210 and BIOL 222. A consideration of the evolution, taxonomy, morphology, physiology, behavior and ecology of marine and estuarine protochordates and vertebrates.

ZOOL 484 Experimental Aquatic Ecology (3) Prerequisites: BIOL 106 and ZOOL 210. Role of theory and experimentation in aquatic ecology. Experimental approaches and testing hypotheses.

ZOOL 495 Mammalian Histology (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: ZOOL 211; and ZOOL 422; or permission of department. A study of the microscopic anatomy, ultrastructure and histophysiology of tissues and organs of mammals.

CHAPTER 9

UNIVERSITY OF MARYLAND SYSTEM AND COLLEGE PARK ADMINISTRATORS AND FACULTY

CAMPUS AND UNIVERSITY OFFICERS

University of Maryland at College Park

President
William E. Kirwan
Vice President for Academic Affairs and Provost
Jacob K. Goldhaber (Acting)
Vice President for Administrative Affairs
Charles F. Sturtz
Vice President for Institutional Advancement
Kathryn Costello
Vice President for Student Affairs
William L. Thomas Jr.

System Administration of the University

Chancellor
Donald N. Langenberg
Vice Chancellor for Academic Affairs
George L. Marx
Vice Chancellor for Advancement
John K. Martin
Vice Chancellor for General Administration
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Board of Regents

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Ilona M. Hogan
Assistant Secretary
Contance M. Unseld
Robert L. Walker, ex officio
Margaret Alton
Mary Arabian
Richard O. Berndt
Benjamin L. Brown
Earle Palmer Brown
Charles W. Cole, Jr.
Frank A. Gunther, Jr.
Ann Hull
Henry R. Lord
Franklin P. Perdue
Student Regent
Margaret B. Woodhull

Aaron, Henry J. Professor, Part-time, Economics. B.A., University of California (Los Angeles), 1958; M.A., Harvard University, 1960; Ph.D., 1963.

Abdelhamid, Mohamed K. Assistant Professor, Mechanical Engineering. B.Sc., Cairo University, 1974; M.S., Iowa State University, 1979; Ph.D., 1981.

Abed, Eyad H. Associate Professor, Electrical Engineeenng; Associate Professor, Institute for Systems Research. B.S., Massachusetts Institute of Technology, 1979; M.S., University of California (Berkeley), 1981; Ph.D., 1982.

Ables, Eileen Assistant Professor, College of Library and Information Services. B.A., Clark College, 1975; M.L.S., University of Maryland, 1977; Ph.D., University of California (Los Angeles), 1985.

Abraham, Katherine Professor, Economics. B.S., Iowa State University, 1976; Ph.D., Harvard University, 1982.

Adams, Bruce Lecturer, part-time, School of Public Affairs. A.B., Princeton University, 1970; J.D., Georgetown University Law Center, 1974.

Adams, Jeffrey D. Associate Professor, Mathematics. B.A., Johns Hopkins University, 1977; Ph.D., Yale University, 1981.

Adams, Lowell W. Instructor, Part-time, Agricultural and Extension Education. B.S., Virginia Polytechnic Institute & State University , 1968; M.S., Ohio State University, 1973; Ph.D., 1976.

Adams, William W. Professor, Mathematics. B.A., University of California (Los Angeles), 1959; Ph.D., Columbia University, 1964.

Ades, Ibrahim Z. Associate Professor, Zoology; Acting Chair, Microbiology. B.A., University of California (Los Angeles), 1971; Ph.D., 1976.

Afflerbach, Peter H. Associate Professor, Curriculum and Instruction. B.A., New York State University (Albany), 1978; M.S., 1979; Ed.D., 1981.

Agar, Michael H. Professor, Anthropology. A.B., Stanford University, 1967; Ph.D., University of California (Berkeley), 1971.

Aggour, M. Sherif Professor, Civil Engineering. B.S., Cairo University, 1964; M.S., 1966; Ph.D., University of Washington, 1972.

Agrawala, Ashok K. Professor, Computer Science. B.S., Agra University, 1960; B.E., Indian Institute of Science, 1963; M.E., 1965; Ph.D., Harvard University, 1970.

Agre, Gene P. Associate Professor, Education Policy, Planning, and Administration. B.A., Macalester College, 1951; B.S., University of Minnesota, 1953; M.A., 1956; Ph.D., University of Illinois (Urbana), 1964.

Aguilar-Mora, Jorge Professor and Graduate Director, Spanish and Portuguese. B.A., Universidad Nacional de Mexico, 1966; Ph.D., El Colegio de Mexico, 1976.

A'Hearn, Michael F. Professor and Acting Chair, Astronomy. B.S., Boston College, 1961; Ph.D., University of Wisconsin, 1966.

Ahrens, Richard A. Professor, Human Nutrition and Food Systems. B.S., University of Wisconsin, 1958; Ph.D., University of California (Davis), 1963.

Aiello, Elaine L. Instructor, Part-time, Special Education. B.S., Gallaudet College, 1966; M.A., Western Maryland, 1975.

Akin, David Associate Professor, Aerospace Engineering; Associate Professor, Institute for Systems Research. S.B., Massachusetts Institute of Technology, 1974; S.M., 1975; Sc.D., 1981.

Alavi, Maryam Associate Professor, College of Business and Management. B.A., State University of New York at Buffalo, 1972; M.S., Ohio State University, 1974; Ph.D., 1978.

Albrecht, Pedro Professor, Civil Engineering. Dipl. Ing., Federal Institute of Technology (Switzerland), 1962; Ph.D., Lehigh University, 1972.

Aldridge, Charlotte Groff Instructor, Maryland English Institute. B.A., University of Florida, 1979; M.A., 1982.

Alexander, Charles, Jr. Lecturer, Part-time, Electrical Engineering. B.S., Lowell Technological Institute, 1962; M.S., University of New Hampshire, 1965; Ph.D., University of Maryland, 1973.

Alexander, James C. Professor, Mathematics. B.A., Johns Hopkins University, 1964; Ph.D., 1968.

Alexander, Linda Assistant Professor, Health Education. BSN, University of Maryland, 1972; M.S.Ed., University of Southern California, 1977; M.S.N., University of Texas, 1980; Ph.D., University of Maryland, 1988.

Alexander, Millard H. Professor, Chemistry and Biochemistry. B.A., Harvard, 1964; Ph.D., University of Paris, 1967.

Alexander, Pamela Assistant Professor, Psychology. B.A., Wake Forest University, 1974; M.A., Emory University, 1978; Ph.D., 1980.

Alford, C. Fred Professor, Government and Politics. B.A., Austin College, 1969; M.A., University of Texas, 1971; Ph.D., 1979.

Ali, Abdul Assistant Professor, College of Business and Management. Bachelor of Technology, Indian Institute of Technology, 1978; M.B.A., Indian Institute of Management, 1980; Ph.D., Purdue University, 1988.

Allan, J. David Adjunct Professor, Zoology. B.Sc., University of British Columbia, 1966; M.S., University of Michigan, 1968; Ph.D., 1971.

Allen, LaRue Associate Professor, Psychology. A.B., Radcliffe College, 1972; M.S., Yale University, 1977; Ph.D., 1980.

Allen, Redfield W. Professor, Part-time, Mechanical Engineering. B.S., University of Maryland, 1943; M.S., 1949; Ph.D., University of Minnesota, 1959.

Alley, Carroll O., Jr. Professor, Physics. B.S., University of Richmond, 1948; M.A., Princeton University, 1951; Ph.D., 1962.

Almenas, Kazys K. Professor, Materials and Nuclear Engineering. B.S., University of Nebraska, 1957; Ph.D., University and Polytechnic of Warsaw, 1968.

Almon, Clopper, Jr. Professor, Economics. A.B., Vanderbilt University, 1956; Ph.D., Harvard University, 1962.

Aloimonos, John Associate Professor, Computer Science. B.S., University of Athens (Greece), 1981; M.S., University of Rochester, 1984; Ph.D., 1987.

Alt, Frank B. Associate Professor, College of Business and Management. B.S.E., Johns Hopkins University, 1967; M.S., Georgia Institute of Technology, 1973; Ph.D., 1977.

Alter, Mary K. Instructor, Mathematics. B.S., University of Maryland, 1957; M.Ed., 1976; Ph.D., 1987.

Amershek, Kathleen G. Associate Professor, Curriculum and Instruction. B.S., Indiana State College (Pennsylvania), 1951; M.Ed., Pennsylvania State University, 1957; Ph.D., University of Minnesota, 1966.

Ammon, Herman L. Professor, Chemistry and Biochemistry. B.S., Brown University, 1958; Ph.D., University of Washington, 1963.

Amodeo, Stefania Lecturer, French and Italian. Laurea in Literature, Genoa University (Italy), 1964

Anand, Davinder K. Professor and Chair, Mechanical Engineering. B.S., George Washington University, 1959; M.S., 1961; Ph.D., 1965.

Anastos, George Professor Emeritus, Zoology. B.S., University of Akron, 1942; M.A., Harvard University, 1947; Ph.D., 1949.

Anderson, Amel Assistant Dean, Colleges of Agriculture and Life Sciences. B.S., Jackson State University, 1962; M.S., University of Houston, 1969; Ed.D., Virginia Polytechnic Institute and State Univ., 1976

Anderson, Clarita S. Assistant Professor, Theatre. B.S., University of Minnesota, 1959; Ph.D., University of Maryland, 1985.

Anderson, Elaine A. Associate Professor, Family and Community Development. B.S., University of Nebraska, 1973; M.S., Pennsylvania State University, 1975; Ph.D., 1978.

Anderson, Gary Assistant Professor, Economics. A.B., Harvard University, 1974; M.A., 1976; Ph.D., 1980.

Anderson, James H. Assistant Professor, Computer Science. B.S., Michigan State University, 1982; M.S., Purdue University, 1983; Ph.D., University of Texas (Austin), 1990.

Anderson, John D. Jr. Professor, Aerospace Engineering. B.S., University of Florida, 1959; Ph.D., Ohio State University, 1966.

Anderson, J. Robert Professor, Physics. B.S., Iowa State University, 1955; Ph.D., 1963.

Anderson, Mary Assistant Professor, Special Education. B.S., Kent State University, 1972; M.A., John Carroll University, 1975; Ph.D., Kent State University, 1988.

Anderson, Nancy S. Professor, Psychology. B.A., University of Colorado, 1952; M.A., Ohio State University, 1953; Ph.D., 1956.

Anderson, Vernon E. Professor Emeritus, Education Policy, Planning, and Administration. B.S., University of Minnesota, 1930; M.A., 1936; Ph.D., University of Colorado, 1942.

Andrews, J. Edward Visiting Professor, Education Policy, Planning, and Administration. B.S., Frostburg State College, 1957; M.Ed., University of Maryland, 1961; Ed.D. 1968.

Angle, Jay S. Professor, Agronomy. B.S., University of Maryland, 1975; M.S., 1978; Ph.D., University of Missouri, 1981.

Anjanappa, Muniswamappa Assistant Professor, Mechanical Engineering. B.E., University of Bangalore (India), 1973; M.E., University of Madras (India), 1975; Ph.D., University of Maryland, 1986.

Ankem, Sreeramamurthy Associate Professor, Materials and Nuclear Engineering. B.S., University of Mysore, 1972; M.E., Indian Institute of Science, 1974, Ph.D., Polytechnic Institute of New York, 1980.

Anlage, Steven Assistant Professor, Physics. B.S., Rensselaer Polytechnic Institute, 1982; M.S., California Institute of Technology, 1984; Ph.D., 1988.

Annand, Viki S. Lecturer, College of Health and Human Performance. B.S., Pennsylvania State University, 1969; M.Ed., George Washington University, 1973; Ed.D., Temple University, 1990.

Antman, Stuart S. Professor, Mathematics. B.S., Rensselaer Polytechnic Institute, 1961; M.S., University of Minnesota, 1963; Ph.D., 1965.

Antonsen, Thomas M. Professor, Physics; Professor, Electrical Engineering; Professor, Laboratory for Plasma Research. B.S., Cornell University, 1973; M.S., 1976; Ph.D., 1977.

Ards, Sheila D. Lecturer, School of Public Affairs. M.S., Carnegie-Mellon University, 1983.

Armstrong, Earlene Associate Professor, Entomology. B.S., North Carolina Central University, 1969; M.S., 1970; Ph.D., Cornell University, 1975.

Armstrong, Richard N. Professor, Chemistry and Biochemistry. B.S., Western Illinois University, 1970; Ph.D., Marquette University, 1974.

Armstrong, Ronald W. Professor, Mechanical Engineering. B.E.S., Johns Hopkins University, 1955; M.Sc., Carnegie-Mellon University, 1957; Ph.D., 1958.

Arrighi, Margarite A. Assistant Professor, Kinesiology. B.S., Westhampton College, 1958; M.S., University of Maryland, 1962; Ed.D., University of North Carolina (Greensboro), 1974

Arsenault, Richard J. Professor, Materials and Nuclear Engineering. B.S., Michigan Technological University, 1957; Ph.D., Northwestern University, 1962.

Ashley, Roy D. Instructor, Part-time, Industrial, Technological and Occupational Education. B.S., College of William and Mary, 1960; M.S., University of Southern California, 1980; M.A., Central Michigan University, 1981.

Aspinwall, Lisa Assistant Professor, Psychology. B.A., Stanford University, 1987; M.A., University of California (Los Angeles), 1988; Ph.D., 1991.

Assad, Arjang J. Professor, College of Business and Management. B.S., Massachusetts Institute of Technology, 1971; M.S., 1976; Ph.D., 1978.

Atchison, William F. Professor Emeritus, Computer Science. A.B., Georgetown College (Kentucky), 1938; M.A., University of Kentucky, 1940; Ph.D., University of Illinois (Urbana), 1943.

Auchard, John F. Associate Professor, English; Director, English Honors Program. B.A., New York University, 1970; M.A., University of Michigan, 1971; Ph.D., University of North Carolina, 1980.

Auerbach, Jonathan Associate Professor, English. B.A., University of California (Santa Cruz), 1976; M.A., Johns Hopkins University, 1978, Ph.D., 1984

Auslander, Joseph Professor, Mathematics. B.S., Massachusetts Institute of Technology, 1952; M.S., University of Pennsylvania, 1953, Ph.D., 1957.

Austin, Mark A. Assistant Professor, Civil Engineering; Assistant Professor, Institute for Systems Research. B.E., University of Canterbury (New Zealand), 1980, M.S., University of California (Berkeley), 1982; Ph.D., 1985.

Austing, Richard H. Associate Professor, Computer Science. B.S., Xavier University, 1953, M.S., Saint Louis University, 1955; Ph.D., Catholic University of America, 1963.

Ausubel, Lawrence Professor, Economics. A.B., Mathematics, Princeton University, 1980; M.S., Mathematics, Stanford University, Mathematics, 1982; M.L.S., Legal Studies, 1984; Ph.D., Economics, 1984

Aversa, Elizabeth S. Lecturer, Part-time, College of Library and Information Services. B.A., Colby College, 1966; M.Ln., Emory University, 1968; Ph.D., Drexel University, 1984.

Axley, John H. Professor Emeritus, Agronomy. B.A., University of Wisconsin, 1937; M.S., University of Maryland, 1942; Ph.D., University of Wisconsin, 1945.

Aycock, Marvin K., Jr. Professor, Agronomy. B.S., North Carolina State University, 1959, M.S., 1963; Ph.D., Iowa State University, 1966.

Aylward, Thomas J. Professor Emeritus, Radio, Television and Film. B.S., University of Wisconsin, 1947; M.S., 1949; Ph.D., 1960.

Ayyub, Bilal Associate Professor, Civil Engineering. B.S., Kuwait University, 1980; M.S., Georgia Institute of Technology, 1981; Ph.D., 1983.

Azarm, Shapour Associate Professor, Mechanical Engineering. B.S., University of Tehran (Iran), 1977; M.S., George Washington University, 1979; Ph.D., University of Michigan, 1984

Aziz, A. Kadir Adjunct Professor, Institute for Physical Science and Technology and Mathematics. B.S., Wilson Teachers College, 1952; M.S., George Washington University, 1954; Ph.D., University of Maryland, 1958.

Babuska, Ivo Research Professor, Mathematics and Institute for Physical Science and Technology. Dipl. Ing., Technical University of Prague, 1949; Ph.D., 1951; Ph.D., Czechoslovak Academy of Sciences, 1955; D.Sc., 1960.

Baden, Andrew Assistant Professor, Physics. B.A., University of Wisconsin (Madison), 1975; B.A., San Francisco State University, 1981; Ph.D., University of California (Los Angeles), 1986.

Badgett, M.V. Lee Assistant Professor, School of Public Affairs. A.B., University of Chicago, 1982; Ph.D., University of California (Berkeley), 1990.

Baer, Ferdinand Professor, Meteorology. B.A., University of Chicago, 1950; M.S., 1954, Ph.D., 1961

Bagwell, Drury G. Assistant Professor, Counseling and Personnel Services. B.S., University of Tennessee at Knoxville, 1964, M.S., 1968; J.D., 1970.

Bailey, Elaine L. Instructor, Institute of Applied Agriculture. B.S., Clemson University, 1982; M.S., Iowa State University, 1984

Baily, Martin N. Professor, Economics, Professor, Part-time, School of Public Affairs. B.A., Christ's College, Cambridge University, 1967; M.A., 1967; M.A., Simon Fraser University, Canada, 1972; Ph.D., Massachusetts Institute of Technology, 1972.

Ball, Michael O. Professor, College of Business and Management, Professor, Institute for Systems Research. B.E.S., Johns Hopkins University, 1972; M.S.E., 1972; Ph.D., Cornell University, 1977

Balthrop, Carmen A. Associate Professor, Music. B.M., University of Maryland, 1971, M.M., Catholic University, 1972.

Bandel, Vernon A. Professor, Emeritus, Agronomy. B.S., University of Maryland, 1959, M.S., 1962, Ph.D., 1965

Banerjee, Manoj K. Professor, Physics. B.S., Patna University, 1949, M.S., Calcutta University, 1952; Ph.D., 1956.

Barao, Scott M. Associate Professor, Animal Sciences. B.S., Michigan State University, 1980; M.S., 1983; Ph.D., 1986.

Baras, John S. Professor, Electrical Engineering; Martin Marietta Chair in Systems Engineering, Institute for Systems Research. B.S., National Technical University of Athens, 1970; S.M., Harvard University, 1971; Ph.D., 1973.

Barbe, David F. Executive Director, Engineering Research Center; Professor, Electrical Engineering. B.S., West Virginia University, 1962; M.S., 1964; Ph.D., Johns Hopkins University, 1969.

Barbosa, Pedro Professor, Entomology. B.S., City College of New York, 1966; M.S., University of Massachusetts, 1969; Ph.D., 1971.

Bardasis, Angelo Professor and Associate Chairman, Physics. A.B., Cornell University, 1957; M.S., University of Illinois (Urbana), 1959; Ph.D., 1962.

Barker, Donald B. Associate Professor, Mechanical Engineering. B.S.M.E., University of Washington, 1969; M.S., 1971; Ph.D., University of California (Los Angeles), 1976.

Barkin, Steve M. Associate Professor, College of Journalism. A.B., Washington University (St. Louis), 1967; M.J., Columbia University Graduate School of Journalism, 1968; Ph.D., Ohio State University, 1978.

Barlow, Diane L. Lecturer, College of Library and Information Services. B.S., Auburn University, 1963; M.L.S., University of Maryland, 1976; Ph.D., 1989.

Barlow, Jewel B. Associate Professor, Aerospace Engineering. B.Sc., Auburn University, 1963; M.S., 1964; Ph.D., University of Toronto, 1970.

Barnett, Audrey J. Associate Professor, Zoology. B.A., Wilson College, 1955; M.A., Indiana University, 1957; Ph.D., 1962.

Barnett, Neal M. Associate Professor, Botany. B.S., Purdue University, 1959; Ph.D., Duke University, 1966.

Barnett, Ronald J. Associate Professor, Music. B.Mus., University of Rochester, 1960; M.Mus., University of Maryland, 1973.

Barrabini, Micheline Lecturer, French and Italian. Licence en Droit, Bordeaux (France), 1952; Licence es Lettres, Aix en Provence (France), 1955.

Barry, Jackson G. Associate Professor, English. B.A., Yale University, 1950; M.A., Columbia University, 1951; Ph.D., Case-Western Reserve University, 1963.

Bartol, Kathryn M. Professor, College of Business and Management. B.A., Marygrove College, 1963; M.A., University of Michigan, 1966; Ph.D., Michigan State University, 1972.

Basili, Victor R. Professor, Computer Science; Professor, Institute for Advanced Computer Studies. B.S., Fordham University, 1961; M.S., Syracuse University, 1963; Ph.D., University of Texas, 1970.

Baum, Howell S. Professor, Urban Studies. B.A., University of California (Berkeley), 1967; M.A., University of Pennsylvania, 1968; M.C.P., University of California (Berkeley), 1971; Ph.D., 1974.

Baxter, Sharon E. Instructor, Part-time, Sociology. B.A., University of North Carolina, 1969; M.A., University of Maryland, 1973.

Bean, George A. Professor, Botany. B.S., Cornell University, 1958; M.S., University of Minnesota, 1960; Ph.D., 1963.

Beardsley, Katherine Pedro Assistant Dean, College of Behavioral and Social Sciences. B.S., Oregon State University, 1972; M.A., University of Minnesota, 1977; Ph.D., 1983.

Beasley, Maurine H. Professor, College of Journalism. B.A., University of Missouri, 1958; B.J., 1958; M.S., Columbia University, 1963; Ph.D., George Washington University, 1974.

Beatty, Charles J. Associate Professor, Industrial, Technological and Occupational Education. B.S., Northern Michigan University, 1959; M.A., Michigan State University, 1963; Ph.D., Ohio State University, 1967.

Bechhoefer, William B. Associate Professor, School of Architecture. A.B., Harvard College, 1963; M. Arch., Harvard Graduate School of Design, 1967.

Beck, Evelyn Torton Professor and Director, Women's Studies Program. B.A., Brooklyn College, 1954; M.A., Yale University, 1955; Ph.D., University of Wisconsin (Madison), 1969.

Beck, Kenneth H. Associate Professor, Health Education. B.S., Pennsylvania State University, 1972; M.A., Syracuse University, 1975; Ph.D., 1977.

Beckley, Betty Assistant Dean, Coordinator for Undergraduate Advising, Undergraduate Studies, Instructor, part-time, English. B.S., University of Maryland, 1964; M.A., 1977; M.F.A., George Washington University, 1980; Ph.D., University of Maryland, 1983.

Beckman, Paula J. Associate Professor, Special Education. B.A., Hastings College, 1974; M.A., University of Nebraska, 1977; Ph.D., University of North Carolina, 1980.

Beckmann, Robert B. Professor, Emeritus, Chemical Engineering. B.S., University of Illinois (Urbana), 1940; Ph.D., University of Wisconsin, 1944.

Bedingfield, James P. Associate Professor, College of Business and Management. B.S., University of Maryland, 1966; M.B.A., 1968; D.B.A., 1972.

Bedos-Rezak, Brigitte M. Associate Professor, History. L'Ecole Nationale des Chartes, 1977; Licence es Lettres, Universite de Paris (Sorbonne), 1977.

Beicken, Peter U. Professor, Germanic and Slavic Languages and Literatures. M.A., University of Munich (Germany), 1968; Ph.D., Stanford University, 1971.

Beicken, Suzanne J. Lecturer, Music. B.S., Columbia University, 1966; M.A., Stanford University, 1969; Ph.D., 1980.

Bell, Matthew J. Assistant Professor, School of Architecture. B.ARCH., University of Notre Dame, 1983; M.ARCH., Cornell University, 1987.

Bell, Roger A. Professor, Astronomy. B.Sc., University of Melbourne, 1957; Ph.D., Australian National University, 1961; Ph.D. (honoris causa), Uppsala University, 1982.

Bell, Thomas P. Instructor, Industrial, Technological and Occupational Education. B.S., Millersville University of Pennsylvania, 1983; M.S., 1985; Ph.D., University of Maryland, 1992.

Bellama, Jon M. Professor, Chemistry and Biochemistry. A.B., Allegheny College, 1960; Ph.D., University of Pennsylvania, 1966.

Belz, Herman J. Professor, History. A.B., Princeton University, 1959; M.A., University of Washington, 1963; Ph.D., 1966.

Bender, Filmore E. Professor, Agricultural and Resource Economics. B.S., University of California (Davis), 1961; M.S., North Carolina State University, 1964; Ph.D., 1965.

Benedetto, John J. Professor, Mathematics. B.A., Boston College, 1960; M.A. Harvard University, 1962; Ph.D., University of Toronto, 1964.

Benesch, William Professor Emeritus, Institute for Physical Science and Technology. B.A., Lehigh University, 1942; M.A., Johns Hopkins University, 1950; Ph.D., 1952.

Benito-Vessels, Carmen Assistant Professor, Spanish and Portuguese. B.A., University of Salamanca, Spain, 1977; M.A., 1977; Ph.D., University of California Santa Barbara, 1988.

Bennett, Ralph D., Jr. Professor, School of Architecture. B.A. Arch., Princeton University, 1961; M.F.A. Arch., 1966.

Bennett, Robert L. Associate Professor, Economics. B.A., University of Texas, 1951; M.A., 1955; Ph.D., 1963.

Bennett, Stanley W. Associate Professor, Human Development. B.A., Iowa State University, 1959; M.A., State University of Iowa, 1961; Ph.D., University of Michigan, 1970.

Bentley, William E. Assistant Professor, Chemical Engineering. Assistant Staff Scientist, Center for Agricultural Biotechnology. B.S., Cornell University, 1982; M.Eng., 1983; Ph.D., University of Colorado (Boulder), 1989.

Bentz, Frenk L., Jr. Vice President Emeritus, Agricultural Affairs; Associate Professor, Agronomy. B.S., University of Maryland, 1942; Ph.D., 1952.

Berdahl, Robert O. Professor, Education Policy, Planning, and Administration; Director, Institute for Research in Higher and Adult Education; Affiliate Professor, Government and Politics. B.A., University of California (Los Angeles), 1949; M.A., University of California (Berkeley), 1954; M.Sc., London School of Economics and Political Science, 1957; Ph.D., University of California (Berkeley), 1958.

Berenstein, Carlos A. Professor, Mathematics; Professor, Institute for Systems Research. Licenciado En Matematicas, University of Buenos Aires, 1966; M.S., New York University, 1969; Ph.D., 1970.

Berg, Kenneth R. Associate Professor, Mathematics. B.S., University of Minnesota, 1960; Ph.D., 1967.

Berg, Linda R. Lecturer, Botany. B.S., University of Maryland, 1969; M.S., 1976; Ph.D., 1983.

Berger, Bruce S. Professor, Mechanical Engineering. B.S., University of Pennsylvania, 1954; M.S., 1959; Ph.D., 1962.

Bergmann, Barbara R. Professor Emeritus, Economics. A.B., Cornell University, 1948; M.A., Harvard University, 1955; Ph.D., 1959.

Berlin, Adele Professor, Hebrew and East Asian. B.A., University of Pennsylvania, 1964; Ph.D., 1976.

Berlin, Ira Professor, History. B.S., University of Wisconsin, 1963; M.A., 1966; Ph.D., 1970.

Berman, Louise M. Professor, Education Policy, Planning, and Administration. A.B., Wheaton College, 1950; M.A., Columbia University, 1953; Ed.D., 1960.

Berman, Marilyn R. Associate Dean, College of Engineering. B.A., Brooklyn College, 1956; M.A., University of Maryland, 1973; Ph.D., 1979.

Bernard, Peter S. Associate Professor, Mechanical Engineering. B.E. (M.E.), City College of the City University of New York, 1972; M.S., University of California (Berkeley), 1973; Ph.D., 1977.

Bernstein, Melvin Professor, Music; Administrative Dean, Summer Programs. A.B., Rhodes College, 1947; B. Mus., 1948; M.Mus., University of Michigan, 1949; M.A., University of North Carolina, 1954; Ph.D., 1964.

Berry, Thomas E. Associate Professor, Russian Language and Literature. B.S., Southern Illinois University, 1952; M.A., University of Illinois (Urbana), 1955; Ph.D., University of Texas, 1966.

Best, Otto F. Professor, Germanic and Slavic Languages and Literatures. Ph.D., University of Munich (Germany), 1963.

Beste, C. Edward Associate Professor, Horticulture. B.S., Purdue University, 1961; M.S., 1969; Ph.D., 1971.

Betancourt, Roger R. Professor, Economics. B.A., Georgetown University, 1965; Ph.D., University of Wisconsin, 1969.

Bhegat, Satindar M. Professor, Physics. B.A., Jammu and Kashmir University, 1950; M.Sc., University of Delhi, 1953; Ph.D., 1956

Bhathena, Sam J. Adjunct Associate Professor, Human Nutrition and Food Systems. B.S., University of Bombay, 1961; M.S., 1964; Ph.D., 1970.

Bickley, William E. Professor Emeritus, Entomology. B.A., University of Tennessee, 1934; M.S., 1936; Ph.D., University of Maryland, 1940.

Biehal, Gabriel J. Associate Professor, College of Business and Management. B.A., McGill University, 1966; M.B.A., 1969; Ph.D., Stanford University, 1978.

Biglo, David I. Assistant Professor, Mechanical Engineering. B.S., Case Western Reserve University, 1971; M.S., Massachusetts Institute of Technology, 1976; Engr., 1978; Ph.D., 1986.

Bilik, Dorothy Associate Professor, Germanic and Slavic Languages and Literatures. B.A., Brooklyn College, 1951; M.A., University of Cincinnati, 1969; Ph.D., University of Maryland, 1977.

Billingsley, Andrew Professor and Chair, Family and Community Development; Affiliate Professor Sociology. A.B., Grinnell College, 1951; M.S., Boston University, 1956; M.A., University of Michigan, 1960; Ph.D., Brandeis University, 1964.

Bingham, Alfred J. Professor Emeritus, French and Italian. B.A., Yale University, 1933; Ph.D., Columbia University, 1939.

Birk, Janice M. Professor, Counseling and Personnel Services. B.A., Sacred Heart College, 1963; M.A., Loyola University, 1966; Ph.D., University of Missouri, 1970.

Birkner, Francis B. Professor, Civil Engineering. B.S., Newark College of Engineering, 1961; M.S.E., University of Florida, 1962; Ph.D., 1965.

Birnbaum, Robert Professor, Education Policy, Planning, and Administration. B.A., University of Rochester, 1958; M.A., Teachers College, Columbia University, 1964, Ed.D., 1967

Black, Cordell Assistant Vice President, Academic Affairs; Associate Professor, French and Italian. B.A., St. Augustine's College, 1965; M.A., Wayne State University, 1967; Ph.D., University of Michigan, 1977.

Blankenship, Gilmer L. Professor, Electrical Engineering. B.S., Massachusetts Institute of Technology, 1967; M.S., 1969; Ph.D., 1971.

Blitz, Leo Professor, Astronomy. B.S., Cornell University, 1967; M.S., Columbia University, 1975; M.Phil., 1976, Ph.D., 1979.

Block, Ira Associate Professor, Textiles and Consumer Economics. B.S., University of Maryland, 1963; Ph.D., 1971

Blotner, Pamela Assistant Professor, Art. B.S., The Cleveland Institute of Art 1976; M.F.A., Syracuse University, 1980.

Blum, Richerd A. Associate Professor, Theatre. B.A., Farleigh Dickinson University, 1965; M.S., Boston University, 1968; Ph.D., University of Southern California, 1977

Blumler, Jay G. Professor, College of Journalism. B.A., Antioch College, 1947; D. Phil, University of Oxford, 1962

Bockstael, Nancy E. Professor, Agricultural and Resource Economics. A.B., Connecticut College, 1971 M.A., Brown University, 1973; Ph.D. University of Rhode Island, 1976.

Bodin, Lawrence D. Professor, College of Business and Management. B.S., Northeastern University 1962 M.S., University of California (Berkeley), 1966; Ph.D., 1967

Bohlke, John K. Adjunct Assistant Professor, Geology. B.A., University of Michigan, Ann Arbor, 1973; M.S., University of Miami, 1978; Ph.D., University of California, Berkeley, 1986.

Boldt, Elihu A. Adjunct Professor, Physics. B.S., Massachusetts Institute of Technology, 1953; Ph.D., 1958.

Bolles, A. Lynn Associate Professor, Women's Studies; Associate Professor, Affiliate, Anthropology. A.B., Syracuse University, 1971; M.A., Rutger's University, 1978; Ph.D., 1981

Bondurant, Dolores Lecturer, French and Italian. B.A., Morgan State College, 1954; M.A., Howard University, 1966.

Bonta, Juan P. Professor, School of Architecture. B.H., Collegio Nacional de Buenos Aires, 1951; M.Arch., University of Buenos Aires, 1959.

Booth, Nancy M. Affiliate Assistant Professor, Agricultural and Extension Education. B.S., Seton Hall University, 1971; M.A., Michigan State University, 1973; Ph.D., University of Maryland, 1979.

Borgia, Gerald Associate Professor, Zoology. A.B., University of California (Berkeley), 1970; M.S., University of Michigan (Ann Arbor), 1973; Ph.D., 1978.

Borkovec, Alexej B. Adjunct Professor, Entomology. B.S., Virginia Polytechnic Institute, 1949; M.S., 1954; Ph.D., 1955.

Bottino, Paul J. Associate Professor, Botany. B.S., Utah State University, 1964; M.S., 1965; Ph.D., Washington State University, 1969.

Bottrell, Dale G. Professor, Entomology. B.S., Oklahoma State University, 1963; Ph.D., 1968.

Bouwkamp, John C. Associate Professor, Horticulture. B.S., Michigan State University, 1964; M.S., 1966; Ph.D., 1969.

Bovill, Carl Associate Professor, School of Architecture. B.S., University of California, Santa Barbara, 1969; M.S., University of California, Berkeley, 1970; M.Arch., University of Hawaii, 1976.

Bowie, Lucile B. Professor Emerita, Human Development. B.S., University of Maryland, 1942; M.A., Teachers College, Columbia University, 1946; Ed.D., University of Maryland, 1957.

Bowker, Albert H. Dean, Emeritus, School of Public Affairs. B.S., M.I.T., 1941; Ph.D., Columbia University, 1949.

Boyd, Alfred C. Jr. Associate Professor, Chemistry and Biochemistry. B.S., Canisius College, 1951, M.S., Purdue University, 1953; Ph.D., 1957.

Boyd, Derek A. Professor and Chairman, Physics; Professor, Laboratory for Plasma Research. B.S., University of Cape Town (S. Afrca), 1964; B.S. (Hons.), 1965, M.Sc., 1967; Ph.D., Stevens Institute of Technology, 1973.

Boyd, Vivian S. Associate Professor, Counseling and Personnel Services. B.A., Antioch College, 1961, M.A., University of Colorado, 1968, M.A., University of Maryland (Far East Division), 1972; Ph.D., University of Maryland, 1975.

Boyle, Mike Associate Professor, Mathematics. B.A., Stanford University, 1974; A.B. and B.S., University of California (Berkeley), 1977; Ph.D., University of Washington, 1983

Brace, John W. Professor Emeritus, Mathematics. B.A., Swarthmore College, 1949; M.A., Cornell University, 1951, Ph.D., 1953

Bradbury, Miles L. Assistant Professor, History A.B., Harvard University, 1960; A.M., 1961, Ph.D., 1967

Bradford, William D. Professor, College of Business and Management B.A., Howard University, 1967; M.B.A., Ohio State University, 1968; Ph.D., 1972

Brami, Joseph Associate Professor, French and Italian. Licence de Lettres Modernes, Sorbonne Nouvelle, 1974; Maitrise de Lettres Modernes, 1976; Ph.D., New York University, 1984.

Brennigan, Vincent M. Professor, Fire Protection Engineering. B.A., University of Maryland, 1973, J.D., Georgetown University, 1975.

Braun, Michael J. Adjunct Assistant Professor, Zoology. B.A., Cornell University, 1977; Ph.D., Louisiana State University Medical Center, 1983.

Brauth, Steven E. Professor, Psychology. B.S., Rensselaer Polytechnic Institute, 1967, Ph.D., New York University, 1973.

Brayman, William A. Assistant Professor, History B.A., Cornell University, 1983; M.A., Stanford University, 1990; Ph.D., 1992.

Brechling, Frank P. Professor, Economics B.A., University of Freiburg, 1951; Ph.D., Trinity College, 1955.

Brecht, Richard D. Professor, Russian Language and Literature. B.A., Pennsylvania State University, 1965; M.A., Harvard University, 1969; Ph.D., 1972.

Breitburg, Denise L. Adjunct Associate Professor, Zoology. B.S., Anzona State University, 1975; M.A., University of California (Santa Barbara), 1982; Ph.D., 1984.

Breslow, Marvin A. Associate Professor, History. B.A., University of Nebraska, 1957; A.M., Harvard University, 1958; Ph.D., 1963.

Briber, Martin R. Assistant Professor, Engineering Materials. B.S., Cornell University, 1979; M.S., University of Massachusetts, 1981; Ph.D., 1984.

Bridwell, Margaret Affiliate Associate Professor, Health Education. B.S., Tulane University, New Orleans, 1943; M.D., Louisiana State University Medical Center, 1946.

Brigham, Bruce H. Associate Professor, Curriculum and Instruction. B.S., SUNY (Brockport), 1949; M.A., 1954; Ph.D., Temple University, 1967.

Brigham, Ellen T. Instructor, Hearing and Speech Sciences. B.A., SUNY (Binghamton), 1975; M.S., Syracuse University, 1977.

Brill, Dieter R. Professor, Physics. B.A., Princeton University, 1954; Ph.D., 1959.

Brin, Michael Professor, Mathematics. B.A., Moscow State University, 1970; Ph.D., Kharkov State University, 1975.

Brinsfield, Russell B. Affiliate Assistant Professor, Agricultural Engineering B.S., University of Maryland, 1971, M.S., 1973, Ph.D., 1981

Brodie, Herbert L. Professor, Agricultural Engineering B.S., Rutgers The State University, 1964, M.S., University of Maryland, 1972.

Brodsky, Harold Associate Professor, Geography B.S., City University of New York (Brooklyn College), 1954; M.S., Colorado College, 1960; Ph.D., University of Washington, 1966.

Brooks, Laure W. Instructor, Institute of Criminal Justice and Criminology B.A., University of Maryland, 1980; M.A., 1982; Ph.D., 1986

Broome, Frederick R. Lecturer, Part-time, Geography B.S., University of Georgia, 1964, M.A., 1966

Brower, Sidney N. Associate Professor, Urban Studies B.Arch., University of Cape Town, 1953, M.C.P., Massachusetts Institute of Technology, 1964

Brown, Earl H. Professor, Agricultural and Resource Economics. B.S., University of Minnesota, 1956; M.S., 1957; Ph.D., Michigan State University, 1961.

Brown, Elizabeth Y. Lecturer, Kinesiology. B.S., Kent State University, 1965; M.Ed., 1967; Ed.D., University of Houston, 1973.

Brown, John H. Associate Professor, Philosophy. A.B., Princeton University, 1952; M.A., 1957; Ph.D., 1959.

Brown, Joshua R.C. Professor Emeritus, Zoology. B.A., Duke University, 1948; M.A., 1949; Ph.D., 1953.

Brown, Michael Professor and Chairman, Geology. B.A., University of Keele, U.K., 1969, Ph.D., 1975.

Brown, Peter G. Professor, School of Public Affairs. B.A., Haverford College, 1961, M.A., Columbia University, 1964; Ph.D., 1969.

Brown, Richard H. Professor, Sociology. B.A., University of California (Berkeley), 1961, M.A., Columbia University, 1965; Ph.D., University of California (San Diego), 1973.

Brown, Robert A. Associate Professor, Psychology. B.A., University of Richmond, 1958; M.A., State University of Iowa, 1961; Ph.D., 1962.

Brown, Russell G. Professor Emeritus, Botany. B.S., West Virginia University, 1929; M.S., 1930; Ph.D., University of Maryland, 1934

Browning, John M. Instructor, Botany. B.A., Wake Forest University, 1975; M.S., New Mexico State University, 1989.

Brush, Stephen G. Professor, History; Professor, Institute for Physical Science and Technology. A.B., Harvard University, 1955; Ph.D., Oxford University, 1958.

Bryan, John L. Professor and Chairman, Fire Protection Engineering. B.S., Oklahoma State University, 1953; M.S., 1954; Ed.D., American University, 1965.

Bryant, Deborah R. Assistant to the Dean, Computer, Mathematical and Physical Sciences. M.S., State University of New York at Brockport, 1975.

Bryer, Jackson Professor, English. B.A., Amherst College, 1959; M.A., Columbia University, 1960; Ph.D., University of Wisconsin, 1965.

Bub, Jeffrey Professor, Philosophy. B.Sc., University of Cape Town (pure science), 1961; B.Sc., University of Cape Town (applied mathematics), 1962; Ph.D., University of London, 1966.

Buccheister, Eleanura Y. Assistant Instructor, Part-time, Special Education. B.S., University of Maryland, 1980.

Buckley, Frank T., Jr. Professor, Mechanical Engineering. B.S., University of Maryland, 1959; Ph.D., 1968.

Bunn, Michael M. Lecturer, Part-time, Music. B.Mus., Peabody Conservatory of Music, 1977; M.Mus., 1979.

Buriel, Joseph F. Instructor, Agronomy. B.S., University of California (Riverside), 1968; M.S., Duke University, 1979.

Burke, Frank G. Professor, College of Library and Information Services. B.A., University of Alaska, 1955; M.A., University of Chicago, 1959; Ph.D., 1969.

Burke, Philip J. Professor and Chairman, Special Education. B.S., University of Scranton, 1963; M.S., 1965; Ph.D., Syracuse University, 1970.

Burt, John J. Dean, College of Health and Human Performance; Professor, Health Education. B.A., Duke University, 1956; M.Ed., University of North Carolina, 1957; M.S., University of Oregon, 1960; M.Ed., 1962.

Butler, Ethel Lecturer, Part time, Dance.

Butler, Mary L. Instructor, Maryland English Institute. B.A., University of Connecticut, 1956; M.A.T., Yale University, 1961; Ph.D., University of Connecticut, 1979.

Butler, Phyllis Reisman Assistant Professor, Spanish and Portuguese. B.A., Brooklyn College (CUNY), 1977; M.A., University of Iowa, 1979, Ph.D., University of Minnesota, 1986.

Butterworth, Charles E. Professor, Government and Politics. B.A., Michigan State University, 1959, Doct., University of Nancy (France), 1961; M.A., University of Chicago, 1962; Ph.D., 1966.

Byrnes, James P. Assistant Professor, Human Development. B.S.., Saint Joseph's University, 1981; Ph.D., Temple University, 1985.

Cadman, Theodore W. Professor, Chemical Engineering. B.S., Carnegie Institute of Technology, 1962; M.S., 1964; Ph.D., 1966.

Cain, Jarvis L. Professor, Agricultural and Resource Economics. B.S., Purdue University, 1955; M.S., Ohio State University, 1956; Ph.D., 1961.

Calabrese, Richard V. Associate Professor and Chair, Chemical Engineering. B.S., University of Rochester, 1969; M.S., University of Massachusetts, 1971; Ph.D., 1976.

Caldwell, Graham E. Assistant Professor, Kinesiology. B.S., University of Waterloo, 1978; M.S., 1980; Ph.D., Simon Fraser University, 1987.

Callahan, Christopher Instructor, College of Journalism. B.S., Boston University, 1982; M.P.A., Harvard University/JFK School of Government, 1990.

Calicott, George H. Professor, History. B.A., University of South Carolina, 1950; M.A., Columbia University, 1951; Ph.D., University of North Carolina, 1956.

Campbell, Patricia F. Associate Professor, Curriculum and Instruction. B.S., College of Saint Francis, 1970; M.S., Michigan State University, 1972; Ph.D., Florida State University, 1976.

Candela, Philip A. Associate Professor, Geology. B.S., City University of New York (Brooklyn College), 1977; Ph.D., Harvard University, 1982.

Caramello, Charles Associate Professor, English; Associate Professor, Comparative Literature. B.A., Wesleyan University, 1970; M.A., University of Wisconsin (Milwaukee), 1973; Ph.D., 1978.

Carbone, Robert F. Professor, Education Policy, Planning, and Administration. B.A., Eastern Montana College, 1953; M.S., Emory University, 1958; Ph.D., University of Chicago, 1961.

Carey, Deborah A. Assistant Professor, Curriculum and Instruction. B.S.E., Westfield State College, 1972; M.E.A., University of Georgia (Athens), 1986; Ph.D., University of Wisconsin (Madison), 1989.

Carlson, John B. Lecturer, Part-time, University Honors Program. B.A., Oberlin, 1967; M.S., University of Maryland, 1971; Ph.D., 1977.

Carmel, Douglas K. Assistant Professor, College of Veterinary Medicine. B.S., University of Wisconsin, 1976; M.S., 1979; D.V.M., University of Minnesota, 1985.

Carr, Catherine E. Assistant Professor, Zoology. B.Sc., University of Cape Town (South Africa), 1976; M.A., State University of New York (Buffalo), 1977; Ph.D., University of California (San Diego), 1984.

Carr, Lewis E. Instructor, Agricultural Engineering. B.S.A.E., Virginia Polytechnic Institute, 1963; M.S., 1970; Ph.D., University of Maryland, 1987.

Carr, Lois Green Adjunct Professor, History. A.B., Swarthmore College, 1943; A.M., Radcliffe College, 1944; Ph.D., Harvard University, 1968.

Carretta, Vincent Professor, English. B.A., State University of New York (Binghamton), 1968; M.A., 1971; Ph.D., University of Iowa, 1977.

Carroll, Mark J. Assistant Professor, Agronomy. B.S., California Polytechnic State University, 1979; M.S., Michigan State University, 1982, Ph.D., Cornell University, 1989

Carroll, Stephen J., Jr. Professor College of Business and Management. B.S. University of California (Los Angeles), 1957, M.A., University of Minnesota, 1959, Ph.D., 1964

Carter, Everett C. Professor, Civil Engineering. B.S., Virginia Polytechnic Institute, 1958; M.E. University of California, 1959, Ph.D., Northwestern University, 1969.

Carter-Porges, C. Sue Professor, Zoology. B.A., Drury College, 1966; Ph.D., University of Arkansas, 1969.

Carton, James A. Associate Professor, Meteorology. B.S.E., Princeton University, 1976; M.S., University of Washington, 1979; M.A., Princeton University, 1980; Ph.D., 1983.

Cartwright, Kent Associate Professor, English. B.A., University of Michigan, 1965; M.A., 1968; Ph.D., Case Western Reserve University, 1979.

Case, William Lecturer, Part-time, Mechanical Engineering. B.S.A.E., University of Maryland, 1961; B.S.M.E., Drexel Institute of Technology, 1965; Ph.D., University of Maryland, 1972.

Cassidy, Claire M. Lecturer, Part-time, Anthropology. B.A., University of Wisconsin, 1965; M.S., 1968; Ph.D., 1972.

Castonguay, Thomas W. Associate Professor, Human Nutrition and Food Systems. B.A., Framingham State College, 1973; M.A., Mount Holyoke College, 1975; Ph.D., Rutgers State University, 1978.

Catania, David N. Assistant to the Dean, Summer Programs. B.S., University of Maryland, 1978.

Cate, George A. Associate Professor, English. B.A., Rutgers-The State University, 1960; M.A., Duke University, 1962; Ph.D., 1968.

Caughey, John L. Professor, American Studies. B.A., Harvard College, 1963; M.A., University of Pennsylvania, 1967; Ph.D., 1970.

Cebrian, Juan A. Adjunct Associate Professor, Geography. Licenciado, Complutense University of Madrid (Spain), 1978; Ph.D., 1983.

Celarier, James L. Associate Professor, Philosophy. A.B., University of Illinois (Urbana), 1956; M.A., 1958; Ph.D., University of Pennsylvania, 1960.

Celi, Roberto Assistant Professor, Aerospace Engineering; Assistant Professor, Institute for Systems Research. L. Ingregneria Aeronautica, Politecnico di Torino, 1980; M.S., University of California, 1982; Ph.D., 1987.

Chai, Tuu-Jyi Associate Professor, Food Science. B.S., Taiwan Institute of Agriculture, 1958; M.S., University of Massachusetts, 1970; Ph.D., 1973.

Chaires, James W., Jr. Assistant Instructor, Part-time, College of Business and Management. B.S., University of Maryland, 1972; M.B.A., 1974

Chait, Richard P. Professor, Education Policy, Planning, and Administration; Director, The Center for Higher Education Governance and Leadership. B.A., Rutgers University, 1966; M.A., University of Wisconsin (Madison), 1968; Ph.D., University of Wisconsin, 1972.

Chalip, Laurence H. Assistant Professor, Kinesiology. A.B., University of California (Berkeley), 1972; M.S., University of Waikato (New Zealand), 1979; M.A., University of Chicago, 1983; Ph.D., 1988.

Chambers, Erve J. Professor, Anthropology. B.A., West Washington State College, 1969; M.A., University of Oregon, 1972; Ph.D., 1973.

Chambers, Robert G. Professor, Agricultural and Resource Economics. B.S.F.S., Georgetown University, 1972; M.S., University of Maryland, 1975; Ph.D., University of California (Berkeley), 1978.

Chander, Suresh Lecturer Part-time, Aerospace Engineering. B.S., Banaras Hindu University, 1964; M.S., Indian Institute of Science, 1966; M.S., University of Maryland, 1971; Ph.D., 1975.

Chang, Chia-Cheh Professor, Physics. B.S., Tunghai University (Taiwan), 1961; M.A., University of Southern California, 1966; Ph.D., 1968.

Chang, Chung Yun Professor, Physics. B.S., National Taiwan University, 1954; Ph.D., Columbia University, 1965.

Chang, Der-Chen Assistant Professor, Mathematics. B.S., National Tsing Hua University (Taiwan), 1979; M.S., 1981, M.A., Princeton University, 1987; Ph.D., 1987.

Chang, Eric C. Associate Professor, College of Business and Management. B.S., National Cheng Kung University, 1974; M.B.A., Wright State University, 1979; Ph.D., Purdue University, 1982.

Chang, Gang Len Associate Professor, Civil Engineering. B.E., National Cheng Kung University, 1975; M.S., National Chiao Tung University, 1979; Ph.D., University of Texas at Austin, 1985.

Chang, Luke L. Y. Professor, Geology. B.S., National Taiwan University, 1957; Ph.D., University of Chicago, 1963.

Chang, Peter C. Associate Professor, Civil Engineering. B.S., Texas A & M University, 1975; M.S., University of Illinois, 1979; Ph.D., 1982.

Chang, Wook Assistant Professor, Urban Studies. B.A., Sung-Kyun-Kwan University, 1975; M.A., Seoul National University, 1977; Ph.D., University of Southern California, 1986.

Chant, Nicholas S. Professor, Physics. B.A., University of Cambridge, 1962; M.A., Downing College (Cambridge University), 1966; Ph.D., Lincoln College (Oxford University), 1966.

Chao, Lin Assistant Professor, Zoology. B.A., Cornell University, 1972; M.A., Mount Holyoke College, 1975; Ph.D., University of Massachusetts, 1979.

Chase, Joan W. Lecturer, Anthropology. B.S., City University of New York, 1954; M.S., American University, 1972; Ph.D., 1988.

Chateauvert, M. Melinda Lecturer, Part-Time, Afro-American Studies. B.A., University of Massachusetts, 1984; M.A., George Washington University, 1986; Ph.D., University of Pennsylvania, 1992.

Chellappa, Ramalinghem Professor, Electrical Engineering. B.E., University of Madras (India), 1975; M.S., Indian Institute of Science (Bangalor), 1977; M.S.E.E., Purdue University, 1978; Ph.D., 1981.

Chen, Alexander Associate Professor, Urban Studies. B.A., New York University, 1973; M.U.P., 1976; Ph.D., University of Michigan, 1981.

Chen, Hsing-hen Professor, Physics; Professor, Institute for Advanced Computer Studies; Professor, Laboratory for Plasma Research. B.S., National Taiwan University, 1968; M.S., Columbia University, 1970; Ph.D., 1973.

Chen, Son-Nan Professor, College of Business and Management. B.A., National Taiwan University, 1964; M.S., University of Georgia, 1971; Ph.D., 1975.

Chin, Tsung Associate Professor, Hebrew and East Asian. B.A., Taiwan Normal University, 1953; M.S., Georgetown University, 1967; Ph.D., 1971.

Choi, Kyu-Yong Associate Professor, Chemical Engineering. B.S., Seoul National University, 1976; M.S., 1978; Ph.D., University of Wisconsin, 1984

Chopra, Inderjit Professor, Aerospace Engineering B.Sc., Punjab Engineering College, 1965; M.E., Indian Institute of Science, 1968; Sc.D., Massachusetts Institute of Technology, 1977.

Christian, Charles M. Associate Professor, Part-time, Urban Studies. B.A., Northeastern State College, 1966; M.A.A.T., 1968; M.A., University of Illinois (Urbana), 1970; Ph.D., 1975.

Christou, Aris Professor, Mechanical Engineering. B.A., Columbia University, 1967; Ph.D., University of Pennsylvania, 1971.

Chu, Hsin Professor, Mathematics. M.S., Tulane University, 1957; Ph.D., University of Pennsylvania, 1959.

Chu, Yaohan Professor Emeritus, Computer Science; Professor, Electrical Engineering. B.S., Chiao-Tung University (China), 1942; M.S., Massachusetts Institute of Technology, 1945; Sc.D., 1953.

Chureman, Charlotte V. Assistant Professor, Family and Community Development. B.Sc., Berea College, 1942; M.Ed., Pennsylvania State University, 1964; Ed.D., 1969.

Churchill, John W. Associate Professor, College of Health and Human Performance. B.S., State University College (Cortland), 1958; M.S., University of Illinois (Urbana), 1959; Ph.D., University of Wisconsin, 1968.

Cirrincione, Joseph M. Associate Professor, Curriculum and Instruction; Associate Professor, Geography. B.S., State University of New York (Oswego), 1962; M.A., Brooklyn College, 1965; M.A., Ohio State University, 1967; Ph.D., 1970.

Clague, Christopher K. Professor, Economics. B.A., Swarthmore College, 1960; Ph.D., Harvard University, 1966.

Clague, Monique W. Professor, Education Policy, Planning, and Administration. B.A., Swarthmore College, 1959; Ph.D., Harvard University, 1969.

Clark, Eugenie Professor Emerita, Zoology. B.A., Hunter College, 1942; M.A., New York University, 1946; Ph.D., 1950.

Clark, Jane E. Associate Professor, Kinesiology. B.S., State University of New York (Brockport), 1968; M.Ed., University of Washington (Seattle), 1970; Ph.D., University of Wisconsin (Madison), 1976.

Clark, Neri A. Professor Emerita, Agronomy. B.S., University of Maryland, 1954; Ph.D., 1959.

Clarke, David H. Professor and Chair, Kinesiology. B.S., Springfield College, 1952; M.S., 1953; Ph.D., University of Oregon, 1959.

Claude, Richard P. Professor, Government and Politics. B.A., College of Saint Thomas, 1956; M.S., Florida State University, 1960; Ph.D., University of Virginia, 1965.

Clearwater, Harvey E. Associate Professor, Health Education. A.B., State University of New York (Albany), 1955; M.A., Michigan State University, 1967; Ed.D., 1970.

Cleary, Marilyn F. Instructor, Mathematics. A.B., Montclair State College, 1953; M.A., 1957; Ph.D., University of Maryland, 1976.

Cleghorn, Reese Professor and Dean, College of Journalism. B.A., Emory University, 1950, M.A., Columbia University, 1956.

Clement, Linda M. Assistant Professor, Counseling and Personnel Services; Director, Undergraduate Admissions Office. B.A., State University of New York (Oswego), 1971; M.A., Michigan State University, 1973; Ph.D., University of Maryland, 1981

Clignet, Remi P. Professor, Sociology. B.A., University of Paris, 1948; Licence es Lettres, 1951; Licence es Law, 1953; M.A., 1958; Ph.D., 1963.

Cockburn, James S. Professor, History. LL.B., Leeds University, 1959; LL.M., 1961, Ph.D., 1970.

Coddington, Jonathan A. Adjunct Professor, Entomology. B.S., Yale University, 1975; M.A., Harvard University, 1978; Ph.D., 1984.

Coffindaffer, Billy L.

Cohen, Avis H. Associate Professor, Zoology. B.Sc., University of Michigan, 1964; Ph.D., Cornell University, 1977.

Cohen, H. Robert Professor, Music. B.A., New York University, 1963; M.A., 1967; Ph.D., 1973.

Cohen, James R. Lecturer, Urban Studies. B.A., University of Michigan (Ann Arbor), 1969, M.R.P., Cornell University, 1985.

Cohen, Jerry D. Adjunct Professor, Botany B.S., University of California (Riverside), 1972; M.S., San Diego State University, 1974, Ph.D., Michigan State University, 1979.

Cohen, Joel M. Professor, Mathematics. Sc.B., Brown University, 1963; Ph.D., Massachusetts Institute of Technology, 1966.

Cohen, Lenore G. Lecturer, Curriculum and Instruction; Coordinator, Montgomery County Teacher Education Center. B.A., Buffalo State, 1968, M.A.T., University of Pittsburgh, 1969; Ed.D., Temple University, 1982.

Cohen, Michael L. Assistant Professor, School of Public Affairs. B.S., University of Michigan, 1975; M.S., Stanford University, 1977; Ph.D., 1981.

Cohen, Thomas D. Associate Professor, Physics. A.B., Harvard University, 1980; Ph.D., University of Pennsylvania, 1985.

Colantuano, Anthony Assistant Professor, Art History B.A.,, Rutgers University, 1980; M.A , Johns Hopkins University, 1982; Ph.D., 1987.

Cole, Wayne S. Professor Emeritus, History B.A., Iowa State Teachers College, 1946; M.S., University of Wisconsin, 1948; Ph.D., 1951.

Coleman, Linda K. Associate Professor, English. A.B., University of Michigan, 1973; M.A., 1973; Ph.D., University of California (Berkeley), 1982.

Colettl, Theresa Professor and Chair, English. B.A., University of Pittsburgh, 1971; M.A., University of Rochester, 1973; Ph.D., 1975.

Collier, Michael Associate Professor, English; Director, Creative Writing Program. B.A., Connecticut College, 1976; M.F.A., University of Arizona, 1979.

Colombini, Marco Professor, Zoology. B.S., McGill University, 1970; Ph.D., 1974.

Colville, James Professor and Chair, Civil Engineering B.S., Purdue University, 1959, M.S., 1960; Ph.D., University of Texas (Austin), 1970.

Colwell, Rita R. Director, Maryland Biotechnology Institute; Professor, Microbiology. B.S., Purdue University, 1956; M.S., 1958; Ph.D., University of Washington, 1961; Professor Extraordinario, Universidad Catolica de Valparaiso, 1978, D.Sc.(Honorary), Heriot-Watt University (Edinburgh, Scotland), 1987; Honorary Professor, University of Queensland (Australia), 1988

Combes, Kevin R. Associate Professor, Mathematics. B.A., Lehigh University, 1977, M.S., University of Chicago, 1978; Ph.D., 1982.

Conde, Maryse Professor, French and Italian Doctorat, Pans III (Sorbonne), 1975.

Coogan, Robert M. Professor, English. B.A., Iona College, 1954, M.A., DePaul University, 1958, Ph.D., Loyola University, 1967

Cook, Clarence H. Professor, Mathematics B.A., State University of Iowa, 1948, M.S., 1950; Ph.D., University of Colorado, 1962

Cook, Donelda A. Assistant Professor, Counseling and Personnel Services. B.S., Delaware State College, 1977, M.A., Southern Illinois University (Carbondale), 1979, Ph.D., 1983.

Cook, Neal A. Lecturer, Part-time, Mechanical Engineering. B.S., Oklahoma State University, 1943; M.S., 1950; Ph.D., University of Texas, 1956

Cooke, Todd J. Associate Professor, Botany. B.S., Antioch College, 1974; Ph.D., Cornell University, 1979.

Cooper, David H. Associate Professor, Special Education. A.B., Brown University, 1975; M.Ed., University of North Carolina (Chapel Hill), 1980; Ph.D., 1984

Cooper, Jack L. Associate Chair, Music. B.Mus., Curtis Institute, 1958; M.Mus., Catholic University of America, 1963.

Cooper, Jeffery M. Professor, Mathematics; Director, Applied Mathematics Program. B.A., Haverford College, 1962; M.S., University of Illinois, 1964; Ph.D., 1967.

Cooperman, Bernard D. Associate Professor, History. B.A., University of Toronto, 1968; M.A., Brandeis University, 1969; M.A., Harvard University, 1972; Ph.D., 1976.

Coplan, Michael A. Professor, Institute for Physical Science and Technology. B.A., Williams College, 1960; Ph.D., Yale University, 1963.

Coppin, Kerry Stuart Assistant Professor, Art. A.A.S., Fashion Institute of Technology, 1973; B.F.A., Rochester Institute of Technology, 1975; M.F.A., Rhode Island School of Design, 1977.

Corliss, John O. Professor Emeritus, Zoology. B.S., University of Chicago, 1944; B.A., University of Vermont, 1947; Ph.D., New York University, 1951.

Correl, Ellen Professor, Mathematics. B.S., Douglass College, 1951; M.S., Purdue University, 1953; Ph.D., 1958.

Corsi, Thomas M. Professor, College of Business and Management. B.A., Case-Western Reserve University, 1971; M.A., Kent State University, 1974; Ph.D., University of Wisconsin, 1976.

Cossa, Dominic F. Professor, Music. B.S., University of Scranton, 1957; M.A., University of Detroit, 1960.

Coughlin, Peter J. Associate Professor, Economics. B.A., State University of New York at Albany, 1973; M.A., 1974; Ph.D., 1976.

Coursey, Robert D. Associate Professor, Psychology. B.S., Spring Hill College, 1966; Ph.D., University of Rochester, 1970.

Courtenay, Roger G. Adjunct Assistant Professor, Horticulture. B.A, University of Guelph, 1976; B.L.A., 1976; M.L.A., Harvard University, 1980.

Coustaut, Carmen Assistant Professor, Theatre. B.A., University of California Los Angeles, 1971; Ed.M., Harvard University, 1972; M.F.A., University of Southern California, 1982.

Craig, Patrick M. Associate Professor, Art. B.F.A., Western Michigan University, 1974; M.F.A., University of Cincinnati, 1976.

Craig, Randall J. Associate Professor, Curriculum and Instruction. B.S., Morgan State University, 1955; M.F.A., Temple University, 1963; Ph.D., University of Maryland, 1974.

Crandall, Robert W. Visiting Lecturer, School of Public Affairs. A.B., University of Cincinnati, 1962; M.A., Northwestern University, 1965; Ph.D., 1968.

Cronin, Audrey K. Assistant Professor, School of Public Affairs. A.B., Princeton University, 1981; M.Phil., Oxford University (England), 1983; D.Phil., 1984

Cropper, Maureen L. Professor, Economics. B.A., Bryn Mawr College, 1969; M.A., Cornell University, 1972; Ph.D., 1973.

Cross, Richard K. Professor, English. A.B., Princeton University, 1962; M.A., Stanford University, 1966; Ph.D., 1967.

Culver, James N. Adjunct Assistant Professor, Botany. B.S., Oklahoma State University, 1985; M.S., 1991; Ph.D., University of California, Riverside, 1991

Cumberland, John H. Professor Emeritus, Economics. B.A., University of Maryland, 1947; M.A., Harvard University, 1949; Ph.D., 1951.

Cunniff, Patrick F. Professor, Mechanical Engineering. B.C.E., Manhattan College, 1955; M.S., Virginia Polytechnic Institute & State University, 1956; Ph.D., 1962.

Cunningham, Jeffrey J. Faculty Research Assistant, Agricultural and Resource Economics. B.S., Ohio State University, 1975; M.S., University of Maryland, 1979; M.S., 1983.

Cunningham, William D. Lecturer, College of Library and Information Services. B.A., University of Kansas, 1959; M.L.S., University of Texas, 1963.

Currie, Douglas G. Professor, Physics. B.E.P., Cornell University, 1958; Ph.D., University of Rochester, 1962.

Currier, Albert W. Assistant Professor, Mathematics. B.A., State University of Iowa, 1954; M.A., Johns Hopkins University, 1959; Ph.D., 1968.

Curry, William A. Associate Specialist, Animal Sciences. B.S., University of Maryland, 1960.

Curtis, Suzanne R. Lecturer, Human Nutrition and Food Systems. B.A., Lewis & Clark College, 1974; M.S., Virginia Polytechnic Institute & State University, 1979; Ph.D., 1982.

Dagenais, Mario Professor, Electrical Engineering. B.Sc., Universite de Montreal, 1974; M.S., University of Rochester, 1976; Ph.D., 1978.

Dager, Edward Z. Professor Emeritus, Sociology. A.B., Kent State University, 1950; A.M., Ohio State University, 1951; Ph.D., 1956.

Dalley, John Professor, Part-time, Music; Member, Guarneri Quartet. Artist Diploma, Curtis Institute of Music, 1958.

Dally, James W. Professor, Mechanical Engineering. B.S., Carnegie Institute of Technology, 1951; M.S., 1953; Ph.D., Illinois Institute of Technology, 1958.

Dancis, Jerome Associate Professor, Mathematics. B.A., Polytechnic Institute of Brooklyn, 1961; M.S., University of Wisconsin, 1963; Ph.D., 1966.

Daniel, Marilyn J. Instructor, Hearing and Speech Sciences. B.A., Western Kentucky University, 1970; M.S., Vanderbilt University, 1974.

Darden, Lindley Professor, Philosophy. B.A., Southwestern University, 1968; A.M., University of Chicago, 1969; S.M., 1972; Ph.D., 1974.

Dardis, Rachel Professor, Economics. B.S., Saint Mary's College (Dublin), 1949; M.S., University of Minnesota, 1963; Ph.D., 1965.

Darling, Marsha J. Lecturer, Part-Time, Afro-American Studies. B.A., Vassar College, 1973; M.A., Duke University, 1975; Ph.D., 1982.

Dasgupta, Abhijit Assistant Professor, Mechanical Engineering. B.S., Indian Institute of Technology, 1976; M.S., Villanova University, 1981; Ph.D., University of Illinois, 1988.

Das Sarma, Sankar Professor, Physics. B.S., Presidency College (Calcutta), 1973; Sc.M., Brown University, 1976; Ph.D., 1979.

Daughtry, Craig S. T. Adjunct Associate Professor, Agronomy. B.S., University of Georgia, 1972; M.S., 1974; Ph.D., Purdue University, 1976.

Davey, H. Beth Professor, Curriculum and Instruction. B.S., University of Miami, 1965; M.A., University of Rochester, 1969; Ph.D., Case-Western Reserve University, 1971.

Davidson, John A. Professor, Entomology. B.A., Columbia Union College, 1955; M.S., University of Maryland, 1957; Ph.D., 1960.

Davidson, Marie S. Executive Assistant to the President, President's Office. B.S., Dillard University, 1959; M.S., University of Maryland, 1967; Ph.D., 1971

Davidson, Neil A. Associate Professor, Curriculum and Instruction. B.S., Case Institute of Technology, 1961; M.A., University of Wisconsin (Madison), 1963; Ph.D., 1970.

Davidson, Roger H. Professor, Government and Politics. A.B., University of Colorado, 1958; Ph.D., Columbia University, 1963.

Davis, Allen P. Assistant Professor, Civil Engineering. B.S., University of Delaware, 1984; M.S., 1986; Ph.D., 1989.

Davis, Christopher C. Professor and Associate Chairman, Electrical Engineering. B.A., Cambridge University, 1965; M.A., 1970; Ph.D., Manchester University (England), 1970.

Davis, Larry S. Professor, Computer Science; Director, Institute for Advanced Computer Studies. B.A., Colgate University, 1970; M.S., University of Maryland, 1972; Ph.D., 1976.

Davis, Shelley G. Associate Professor, Music. A.B., New York University, 1957; M.A., 1960; Ph.D., 1971.

Davisson, Lee D. Professor, Electrical Engineering. B.S.E., Princeton University, 1958; M.S.E., University of California (Los Angeles), 1961; Ph.D., 1964.

Dawisha, Karen L. Professor, Government and Politics. B.A., University of Lancaster, 1971; Ph.D., London School of Economics, 1975.

Dayawansa, Wijesuriya Associate Professor, Electrical Engineering; Associate Professor, Institute for Systems Research. B.Sc., University of Peradeniya (Sri Lanka), 1978; M.Sc., Clarkson University, 1982; D.Sc., Washington University, 1986.

Dayton, C. Mitchell. Professor, Measurement, Statistics, and Evaluation. B.A., University of Chicago, 1955; M.A., University of Maryland, 1963; Ph.D., 1964.

DeAyala, Rafael Jaime Assistant Professor, Measurement, Statistics, and Evaluation. B.A., University of Connecticut (Storrs), 1979; Ph.D., University of Texas (Austin), 1987.

DeBarthe, Jerry V. Associate Professor, Animal Sciences. B.S., Iowa State University, 1961; Ph.D., 1966.

Decker, Morris A. Professor Emeritus, Agronomy. B.S., Colorado State University, 1949; M.S., Utah State University, 1950; Ph.D., University of Maryland, 1953.

DeClaris, Nicholas Professor, Electrical Engineering; Director, Division of Medical Information. B.S., Texas Agricultural and Mechanical University, 1952; S.M., Massachusetts Institute of Technology, 1954; Sc.D., 1959.

Deitzer, Gerald F. Associate Professor, Horticulture. B.S., State University of New York (Buffalo), 1966; Ph.D., University of Georgia, 1971.

DeLio, Thomas J. Associate Professor, Music. B.M., New England Conservatory of Music, 1972; Ph.D., Brown University, 1979.

Dellas, Harris Assistant Professor, Economics. B.A., Athens School of Business & Economics, 1980; Ph.D., University of Rochester, 1985.

DeLorenzo, William E. Associate Professor, Curriculum and Instruction. B.A., Montclair State College, 1959; M.A., 1964; Ph.D., Ohio State University, 1971.

Deming, Grace L. Instructor, Astronomy. B.S., University of Illinois, 1972; M.S., 1974.

DeMonte, Claudia A. Professor, Art. B.A., College of Notre Dame of Maryland, 1969; M.F.A., Catholic University of America, 1971.

Denman III, Daniel W. Manager, Statistical Services, Computer Science Center; Instructor, General Honors Program. B.A., Cornell University, 1976; M.A., University of Maryland, 1980.

Denno, Robert F. Professor, Entomology. B.S., University of California (Davis), 1967; Ph.D., 1973.

Denny, Don W. Professor, Art History. B.A., University of Florida, 1959; M.A., New York University, 1961; Ph.D., 1965.

Dernoeden, Peter H. Professor, Agronomy. B.S., Colorado State University, 1970; M.S., 1976; Ph.D., University of Rhode Island, 1980.

Deshler, Walter W. Lecturer, Part-time, Geography. B.S., Lafayette College, 1943; M.A., University of Maryland, 1953; Ph.D., 1957.

DeShong, Philip R. Professor, Chemistry and Biochemistry. B.S., University of Texas, 1971; Sc.D., Massachusetts Institute of Technology, 1976.

DeSilva, Alan W. Professor, Physics; Professor, Laboratory for Plasma Research. B.S., University of California (Los Angeles), 1954; Ph.D., University of California (Berkeley), 1961.

Desmond, Sharon Assistant Professor, Health Education. B.A., University of Toledo, 1982; M.S. & Ed., 1984; Ph.D., 1988.

Destler, I.M. Professor, School of Public Affairs. B.A., Harvard College, 1961; M.P.A., Princeton University, 1965; Ph.D., 1971.

Destler, William W. Professor and Chairman, Electrical Engineering; Professor, Laboratory for Plasma Research. B.S., Stevens Institute of Technology, 1968; Ph.D., Cornell University, 1972.

Deuel, Nancy R. Assistant Professor, Animal Science. B.S., University of Illinois, 1979; M.S., 1982; Ph.D., 1985.

Devitt, Michael Professor, Philosophy. B.A., University of Sydney, 1965; M.A., Harvard University, 1970; Ph.D., 1972.

DeVoe, Howard J. Associate Professor, Chemistry and Biochemistry. A.B., Oberlin College, 1955; Ph.D., Harvard University, 1960.

Dick, Judith P. Assistant Professor, College of Library and Information Services. B.A., University of Toronto, 1962; B.L.S., 1967; M.L.S., 1970; Ph.D., 1991.

Dick, Richard D. Associate Professor, Mechanical Engineering. B.S., Arizona State College, 1957; M.S., Arizona State University, 1959; Ph.D., 1968.

Dickerson, Russell R. Associate Professor, Meteorology. B.A., University of Chicago, 1975; M.S., University of Michigan, 1978; Ph.D., 1980.

Diener, Theodor O. Distinguished Professor, Botany. Dipl.Sc., Swiss Federal Institute of Technology, 1946; Sc.D., 1948.

Dies, Robert R. Professor, Psychology. B.S., Carroll College, 1962; M.A., Bowling Green State University, 1964, Ph.D., University of Connecticut, 1968.

Dieter, George E. Dean, College of Engineering; Professor, Mechanical Engineering. B.S., Drexel University, 1950; Sc.D., Carnegie-Mellon University, 1953.

Dietz, James M. Assistant Professor, Zoology. B.A., DePauw University, 1970; M.S., Purdue University, 1973; Ph.D., Michigan State University, 1981

Dill, Bonnie T. Professor, Women's Studies. B.A., University of Rochester, 1965; M.A., New York University, 1970; Ph.D., 1979.

Dimarzo, Marino Associate Professor, Mechanical Engineering. Dr. Ing., University of Naples (Italy), 1976; Ph.D., Catholic University, 1982.

Diner, Hasia R. Professor, American Studies. B.A., University of Wisconsin, 1968; M.A.T., University of Chicago, 1970; Ph.D., University of Illinois, 1975.

Dingwall, William O. Associate Professor, Hearing and Speech Sciences. B.S., Georgetown University, 1957; Ph.D., 1964.

DiPaolo, Theresa Director of Student Affairs, College of Arts and Humanities; Instructor, English. B.A., University of Maryland, 1979; M.A., 1982.

DiPietro, Carl Lecturer, Part-time, College of Business and Management. B.S., University of Maryland, 1961; M.A., George Washington University, 1965.

Dively, Galen P. Associate Professor, Entomology. B.S., Juniata College, 1966; M.S., Rutgers University, 1968; Ph.D., 1974.

Dixon, Wanda J. Lecturer, Part-time, University Honors Program. B.A., North Carolina Central University, 1983; J.D., Syracuse University College of Law, 1987.

Dobin, Howard Associate Professor and Associate Chair, English. B.A., Yale University, 1974; Ph.D., Stanford University, 1982.

Doerr, John A. Associate Professor, Poultry Science. B.A., North Carolina State University, 1968; B.S., 1972; M.S., 1975; Ph.D., 1978.

Doetsch, Raymond N. Professor, Emeritus, Microbiology. B.S., University of Illinois (Urbana), 1942; M.A., Indiana University, 1943; Ph.D., University of Maryland, 1948.

Doherty, Lillian E. Assistant Professor, Classics. B.A., St. Mary's College, 1974; M.A., University of Chicago, 1977; Ph.D., 1982.

Donaldson, K. Bruce Professor, Civil Engineering. A.B., Columbia University, 1954; B.S.C.E., 1955; M.S., Wichita State University, 1962; M.S.A.E., 1963; Ph.D., University of Illinois, 1968.

Donawerth, Jane L. Associate Professor, English. B.A., Miami University, 1969; M.A., University of Wisconsin, 1970; Ph.D., 1975.

Donnelly, Dina Lecturer, Theatre. B.A., University of Virginia, 1985; M.F.A., 1988.

Dooling, Robert J. Professor, Psychology. B.S., Creighton University, 1967; M.S., St. Louis University, 1969; Ph.D., 1975.

Dorfman, J. Robert Professor, Physics; Professor, Institute for Physical Science and Technology. A.B., Johns Hopkins University, 1957; Ph.D., 1961.

Dorr, Bonnie Assistant Professor, Computer Science. B.A., Boston University, 1984; M.S., Massachusetts Institute of Technology, 1987; Ph.D., 1990.

Dorsey, John W. Professor, Economics. B.S., University of Maryland, 1958; Certificate, London School of Economics (England), 1959, M.A., Harvard University, 1962; Ph.D., 1964

Dotson, Charles O. Professor, Kinesiology. B.A., Morehead State University, 1963; M.S., Purdue University, 1964; Ph.D., 1968.

Douglass, Larry W. Associate Professor, Animal Sciences. B.S., Purdue University, 1964; M.S., 1966; Ph.D., Oregon State University, 1969.

Douglis, Avron. Professor Emeritus, Mathematics. A.B., University of Chicago, 1938; M.S., New York University, 1949; Ph D., 1949.

Downey-Vanover, Jeanne M. Instructor, Spanish and Portuguese. B.A., West Chester State College, 1983; M.A., University of Maryland, 1986.

Dragt, Alex J. Professor, Physics. A.B., Calvin College, 1958; Ph.D., University of California (Berkeley), 1963.

Drake, James F. Professor, Physics; Professor, Institute for Physical Science and Technology; Professor, Laboratory for Plasma Research. B.S., University of California (Los Angeles), 1969; M.S., 1972, Ph.D., 1975.

Drazen, Allen Professor, Economics. S.B., Massachusetts Institute of Technology, 1972; Ph.D., 1976.

Dreher, M. Jean Associate Professor, Curriculum and Instruction. B.A., University of California (Riverside), 1970; M.A., 1976; Ph.D., 1980.

Dresner, Martin E. Assistant Professor, College of Business and Management. B.Comm., University of Toronto, 1979; M.B.A., York University, 1980; Ph.D., University of British Columbia. 1989.

Drew, H. Dennis. Professor, Physics. B.S., University of Pittsburgh, 1962; Ph.D., Cornell University, 1968

Driskell, David C. Professor, Art. A.B., Howard University, 1955; M.F.A., Catholic University of America, 1962; Doctor of Fine Arts, Tougaloo College, 1977; Doctor of Letters, David Payne College, 1977; Doctor of Fine Arts, Bowdain College, 1989; Doctor of Fine Arts, Westbury College, 1989; Doctor of Humanities, Rust College, 1991.

Drogin, Ellen B. Lecturer, College of Health and Human Performance. B.A., Hood College, 1982; M.A., University of Maryland, 1985; Ph.D., Pennsylvania State University, 1990.

Drost, Uwe Assistant Professor, School of Architecture. Dipl.Ing. Arch & Urban Design , Stuttgart University, 1986; M.ARCH II, Syracuse University, 1987.

Druker, Sylvia Lecturer, Dance.

Drum, Barbara A. Instructor, Kinesiology. B.S., Pennsylvania State University, 1958; M.A., University of Iowa, 1963.

Dubayah, Ralph Assistant Professor, Geography. B.A., University of California (Berkeley), 1982; M.A., University of California (Santa Barbara), 1985; Ph.D., 1990.

Dubel, Robert Y. Visiting Professor, Education Policy, Planning and Administration. A.B., Western Maryland College, 1948; M.S., Boston University, 1950; Ed.D., George Washington University, 1974; Doctor of Laws (Honorary), Western Maryland College, 1983.

Dudash, Michele R. Assistant Professor, Botany. B.A., Millersville University, 1977; Ph.D., University of Illinois (Chicago), 1987.

Dudley, James Professor, Education Policy, Planning, and Administration. B.A., Southern Illinois University 1951; M.S., 1957; Ed.D., University of Illinois (Urbana), 1964.

Duffey, Dick Professor Emeritus, Materials and Nuclear Engineering. B.S., Purdue University, 1939; M.S., University of Iowa, 1940; Ph.D., University of Maryland, 1956.

Duffy, John Professor Emeritus, History. B.A., Louisiana State University, 1941; M.A., 1943, Ph.D., University of California (Los Angeles), 1946.

Duffy, John M. Professor and Chair, Classics. B.A., Maynooth College (Ireland), 1965; M.A., National University of Ireland, 1967; Ph.D., State University of New York (Buffalo), 1975

Dunaway-Mariano, Debra Professor, Chemistry and Biochemistry. B.S., Texas A & M University, 1973, Ph.D., 1975

Duncan, James H. Associate Professor, Mechanical Engineering. B.S., Brown University, 1971, M.A., Johns Hopkins University, 1973; Ph.D., 1979

Dunn, Robert Ellis Associate Professor, Dance. B.M., New England Conservatory of Music, 1958, M.L.S., Rutgers University, 1966.

DuPuy, Karl F.G. Associate Professor, School of Architecture, Affiliate Associate Professor, Urban Studies. B.A., Dartmouth College, 1964, M.Arch., University of Pennsylvania, 1967; M.Arch., Delft University of Technology (The Netherlands), 1969.

Durand, Richard M. Professor, College of Business and Management. B.A., University of Florida, 1968; M.B.A., 1970; Ph.D., 1975.

Durelli, August J. Professor, Mechanical Engineering. B.S., University of Buenes Aires, 1932; Ph.D., Catholic Unviersity of Paris, 1936.

Dutta, Sukanta K. Associate Professor, College of Vetennary Medicine. B.Sc. (Vet.), Bombay University (India), 1956, M.S., University of Minnesota, 1960; Ph.D., 1962.

Dyer, Robert M. Associate Professor, College of Veterinary Medicine. B.S., University of Massachusetts, 1971; V.M.D., University of Pennsylvania, 1975; Ph.D., 1991.

Earl, James A. Professor, Astronomy. B.S., Massachusetts Institute of Technology, 1953; Ph.D., 1957.

Eastman, Timothy E. Associate Research Scientist, Institute for Physical Science and Technology. B.S., University of Minnesota, 1967; M.S., University of Colorado, 1972; Ph.D., University of Alaska, 1979.

Eckstein, Arthur M. Associate Professor, History. B.A., University of California (Los Angeles), 1968; M.A., 1970; Ph.D., University of California (Berkeley), 1978.

Edelstein, Stewart L. Associate Dean, College of Behavioral and Social Sciences; Affiliate Assistant Professor, Education Policy, Planning, and Administration; Affiliate Associate Professor, Government and Politics. B.A., State University of New York (Buffalo), 1968; M.A., University of California (Berkeley), 1973; Ph.D., 1979.

Edgar, Timothy M. Assistant Professor, Speech Communication. B.A., Eastern Illinois University, 1979; M.A., Purdue University, 1982; Ph.D., 1986.

Edmundson, Harold P. Professor Emeritus, Computer Science; Professor, Mathematics. B.A., University of California, 1946; M.A., 1948; Ph.D., 1953.

Efrat, Isaac Associate Professor, Mathematics. B.Sc., Hebrew University, 1979; Ph.D., Courant Institute, New York University, 1983.

Egel, Andrew L. Professor, Special Education. B.A., University of California, 1976; M.A., 1977; Ph.D., 1979.

Ehrlich, Gertrude Professor, Mathematics. B.S., Georgia College, 1943; M.A., University of North Carolina, 1945; Ph.D., University of Tennessee, 1953.

Eichhorn, Bryan W. Assistant Professor, Chemistry and Biochemistry. A.B., Rollins College, 1983; Ph.D., Indiana University, 1987.

Eidson, John R. Lecturer, Part-time, Anthropology. B.A., Duke University, 1976; Ph.D., Cornell University, 1983.

Einstein, Theodore L. Professor, Physics. B.A., Harvard University, 1969; M.A., 1969; Ph.D., University of Pennsylvania, 1973.

Elam, Harry J., Jr. Associate Professor, Theatre. A.B., Harvard University, 1978; Ph.D., University of California (Berkeley), 1983.

Eley, George, Jr. Associate Professor, Curriculum and Instruction. B.S., Ohio State University, 1952; M.Ed., 1957; Ph.D., 1966.

Eliot, John Professor, Human Development. A.B., Harvard University, 1956; A.M.T., 1958; Ed.D., Stanford University, 1966.

Elkin, Stephen L. Professor, Government and Politics. B.A., Alfred University, 1961; Ph.D., Harvard University, 1969.

Elkins, Wilson H. President Emeritus. B.A., University of Texas, 1932; M.A., 1932; B.Litt., Oxford University, 1936; Ph.D., 1936.

Ellingson, R. G. Professor, Meteorology. B.S., Florida State University, 1967; M.S., 1968, Ph.D., 1972.

Ellis, Richard F. Associate Professor, Physics; Associate Professor, Laboratory for Plasma Research. B.S., Cornell University, 1966; M.A., Princeton University, 1968; Ph.D., 1970.

Ellis, Robert L. Professor, Mathematics. A.B., Miami University (Ohio), 1960; Ph.D., Duke University, 1966.

Elliston, Ronald J. Associate Professor, Music. B.S., University of Illinois (Urbana), 1970; M.S., 1973.

Ellsworth, Robert W. Visiting Professor, Physics. B.S., Yale University, 1960; Ph.D., University of Rochester, 1965.

Elsing, Evelyn L. Associate Professor, Music. B.Mus., University of Michigan, 1970; M.Mus., 1971.

Emad, Fawzi P. Professor and Associate Chairman, Electrical Engineering. B.S.E.E., American University (Beirut), 1961; M.S., Northwestern University, 1963; Ph.D., 1966.

Eney, Allen B. Lecturer, Part-time, Georgraphy. B.A., University of Maryland, College Park, 1969; M.A., 1985.

Ennis, Catherine D. Associate Professor, Kinesiology. B.S., Lynchburg College, 1975; M.S., University of North Carolina (Greensboro), 1977; Ph.D., University of Georgia, 1984.

Ephremides, Anthony Professor, Electrical Engineering; Professor, Institute for Systems Research. B.S., National Technical University of Athens, 1967; M.A., 1969; Ph.D., Princeton University, 1971.

Epstein, Norman B. Associate Professor, Family and Community Development. B.A., University of California (Los Angeles), 1969; M.A., 1970; Ph.D., 1974.

Erdman, Richard A. Professor, Animal Sciences. B.S., University of Wisconsin, 1974; M.S., University of Kentucky, 1977; Ph.D., 1979.

Erickson, William C. Professor Emeritus, Astronomy. B.A., University of Minnesota, 1951; M.A., 1955; Ph.D., 1956.

Ernst, John A. Lecturer, Geography. B.S., St. Louis University, 1970; M.S., 1974; Ph.D., University of Maryland, 1987.

Erwin, Terry L. Adjunct Professor, Entomology. B.A., San Jose State College, 1964; M.A., 1966; Ph.D., University of Alberta, 1969.

Etheridge, Jeffery M. Lecturer, Part-time, Mechanical Engineering. B.S., University of Maryland, 1966; M.S., Massachusetts Institute of Technology, 1967; Ph.D., University of Maryland, 1976.

Etlin, Richard A. Professor, School of Architecture. A.B., Princeton University, 1969; M. Arch., 1972; Ph.D., 1978.

Ettenson, Thomas Richard Associate Professor, Health Education. B.A., Fairleigh Dickinson University, 1978; M.S., Kansas State University, 1981; Ph.D., 1984.

Eun, Choel S. Associate Professor, College of Business and Management. B.A., Seoul National University, 1968; M.A., 1971; Ph.D., New York University, 1981.

Evans, Emory G. Professor, History. B.A., Randolph-Macon College, 1950; M.A., University of Virginia, 1954; Ph.D., 1957.

Evans, William Assistant Professor, Economics. B.A., Wake Forest, 1983; M.A., Duke University, 1985; Ph.D., 1987.

Eyler, Marvin H. Professor Emeritus, Kinesiology; Dean Emeritus, College of Physical Education, Recreation, and Health. A.B., Houghton College, 1942; M.S., University of Illinois (Urbana), 1948, Ph.D., 1956.

Eyo, Ekpo Professor, Art History. B.A., Pembroke College, Univ. of Cambridge (England), 1963; M.A., 1967; Ph.D., University of Ibadan (Nigena), 1974.

Faber, John E. Professor Emeritus, Microbiology. B.S., University of Maryland, 1926; M.S., 1927, Ph.D., 1937.

Fabiano, Fabio N. Professor, Art. B. Arch., University of Rome (Italy), 1958; Dr. Arch., University of Florence (Italy), 1964; M.I.D., Syracuse University, 1972.

Fagan, Sarah M. B. Associate Professor, Germanic and Slavic Languages and Literatures. B.A., University of Hawaii, 1977; M.A., 1979; Ph.D., Cornell University, 1985.

Fahnestock, Jeanne Associate Professor, English; Director, Professional Writing Program. B.A., University of Illinois, 1966; M.A., Indiana University, 1967; Ph.D., University of London, 1970.

Fakhre-Zakeri, Issa Assistant Professor, Mathematics. B.S., University of Tehran (Iran), 1972; M.S., George Washington University, 1979; M.S., University of Illinois (Urbana-Champaign), 1984; Ph.D., 1987.

Falcione, Raymond L. Associate Professor, Speech Communication. B.A., University of Akron, 1965; M.A., 1967; Ph.D., Kent State University, 1972.

Falk, David S. Professor, Retired, Physics. B.Eng.Phys., Cornell University, 1954, M.S., Harvard University, 1955; Ph.D., 1959.

Falk, William W. Professor and Chair, Sociology. B.A., North Texas State University, 1969; M.A., 1970; Ph.D., Texas A & M University, 1975.

Faller, Alan J. Research Professor Emeritus, Institute for Physical Science and Technology. B.S., Massachusetts Institute of Technology, 1951; M.S., 1953; D.Sc., 1957.

Faloutsos, Christos Associate Professor, Computer Science; Associate Professor, Institute for Systems Research. B.Sc., National Technical University of Athens, 1981; M.Sc., University of Toronto, 1982; Ph.D., 1987.

Falvey, Daniel E. Assistant Professor, Chemistry and Biochemistry. B.S., North Dakota State University, 1983; Ph.D., University of Illinois, 1988.

Falvo, Giuseppe Associate Professor, French and Italian. B.A., Loyola University, 1974; M.A., Catholic University, 1979; Ph.D., Johns Hopkins University, 1985.

Fanning, Delvin S. Professor, Agronomy. B.S., Cornell University, 1954; M.S., 1959; Ph.D., University of Wisconsin, 1964.

Fanos, Stavroula A. Associate Professor, Music. B. Mus.Ed., Oberlin College, 1957; M.Ed., University of Maryland, 1963; Ed.D., 1970.

Farmer, Noel T., Jr. Adjunct Professor, Education, Policy, Planning and Administration. B.S., Salisbury State University, 1962; M.A., West Virginia University, 1986; E.D., University of Maryland, 1985.

Farquhar, James D. Professor and Chairman, Art History. B.A., Washington and Lee University, 1963; M.A., University of Chicago, 1966; Ph.D., 1972.

Farvardin, Nariman Associate Professor, Electrical Engineering; Associate Professor, Institute for Systems Research. B.S., Rennselaer Polytechnic Institute, 1979; M.S., 1980; Ph.D., 1983.

Fassinger, Ruth E. Assistant Professor, Counseling and Personnel Services. B.A., State University of New York (Fredonia), 1973; M.A., 1978; M.A., Ohio State University (Columbus), 1984; Ph.D., 1987.

Fein, Greta Professor, Curriculum and Instruction. B.A., Queens College, 1951; M.S., Bank Street College of Education, 1961; Ph.D., Yale University, 1969.

Feldman, Robert H.L. Professor, Health Education. B.A., City University of New York, 1964; M.A., Pennsylvania State University, 1966; M.S., Syracuse University, 1972; Ph.D., 1974.

Felton, Kenneth E. Professor Emeritus, Agricultural Engineering. B.S. (Agriculture), University of Maryland, 1950; B.S. (Civil Engr.), 1951; M.S., Pennsylvania State University, 1962.

Fenster, Charles B. Assistant Professor, Botany. B.A., Amherst College, 1979; Ph.D., University of Chicago, 1988.

Ferguson, Alexander D. Adjunct Professor, Entomology. B.Sc., Dalhousie University, 1950; M.S., Cornell University, 1956; Ph.D., 1967.

Ferguson, Marjorie Ruth Associate Professor, Journalism. B.Sc., University of London, 1973; Ph.D., 1979.

Ferrell, Richard A. Professor, Physics. B.S., California Institute of Technology, 1948; M.S., 1949; Ph.D., Princeton University, 1952.

Fetter, Steve Assistant Professor, School of Public Affairs. S.B., Massachusetts Institute of Technology, 1981; M.S., University of California, 1985; Ph.D., 1985.

Fettus, Sharon Lecturer, Part-time, School of Public Affairs. B.A., University of Maryland, 1975; Ph.D., 1989.

Fey, James T. Professor, Mathematics; Professor, Curriculum and Instruction. B.S., University of Wisconsin, 1962; M.A., 1963; Ph.D., Columbia University, 1968.

Fink, Beatrice C. Professor, French and Italian. B.A., Bryn Mawr College, 1953; M.A., Yale University, 1956; Ph.D., University of Pittsburgh, 1966.

Fink, Edward Professor and Distinguished Teacher-Scholar, Speech Communication. B.A., Columbia University, 1966; M.S., University of Wisconsin (Madison), 1969; Ph.D., 1975.

Finkelstein, Barbara J. Professor, Education Policy, Planning, and Administration; Director, Int'l. Center for the Study of Education Policy and Human Values. B.A., Barnard College, 1959; M.A., Teachers College, Columbia University, 1960; Ed.D., 1970.

Finsterbusch, Kurt Professor, Sociology. B.A., Princeton University, 1957; B.D., Grace Theological Seminary, 1960; Ph.D., Columbia University, 1969.

Fischbach, Gerald Professor, Music. B.F.A., University of Wisconsin, 1964; M.M., University of Illinois, 1965; D.M.A., University of Iowa, 1972.

Fischetti, Michael J. Lecturer, Part-time, College of Business and Management. B.A.A., Pace University, 1966; M.B.A., 1969.

Fisher, Michael E. Wilson H. Elkins Distinguished Professor, Institute for Physical Science and Technology; Professor, Physics. B.S., King's College (London), 1951; Ph.D., 1957.

Fitzpatrick, Patrick M. Professor, Mathematics. B.A., Rutgers University, 1966; Ph.D., 1971.

Fivel, Daniel I. Associate Professor, Physics. B.A., Johns Hopkins University, 1953; Ph.D., 1959.

Flack, James K., Jr. Associate Professor, History. B.A., Albion College, 1959; M.A., Wayne State University, 1963, Ph.D., 1968.

Flatter, Charles H. Associate Professor, Human Development. B.A., DePauw University, 1961; E.Ed., University of Toledo, 1965; Ed.D., University of Maryland, 1968.

Fleck, Jere Associate Professor, Germanic and Slavic Languages and Literatures. Ph.D., University of Munich, 1966.

Fleitell, Sandra M. Instructor, Part-time, Dance. B.A., State University of New York (Brockport), 1975; M.A., University of Colorado, 1977.

Flieger, Verlyn B. Associate Professor, English. B.A., George Washington University, 1955; M.A., Catholic University of America, 1972; Ph.D., 1977.

Flood, Ian Assistant Professor, Civil Engineering. B.S., University of Manchester (England), 1980; Ph.D., 1986.

Florian, Lani D. Research Associate, Special Education. B.S., Southern Connecticut State University, 1978; M.S., 1980; Ph.D., University of Connecticut, 1985.

Flyger, Vagn Professor Emeritus, Animal Science. B.S., Cornell University, 1948; M.S., Pennsylvania State University, 1952; Sc.D., Johns Hopkins University, 1956.

Fogle, David P. Associate Professor, School of Architecture; Affiliate Associate Professor, Urban Studies. A.B., Princeton University, 1951; M.C.R.P., University of California (Berkeley), 1958.

Folstrom, Roger J. Professor, Music; Professor, Curriculum and Instruction. B.S., College of St. Thomas, 1956; M.Ed., 1959; M.M., Northwestern University, 1962; Ph.D., 1967.

Forbes, James Associate Professor, Art. B.A., University of Maryland, 1964; M.A., 1966.

Forseth, Irwin N. Associate Professor, Botany. B.A., Hamline University, 1976; Ph.D., University of Utah, 1982.

Foster, Phillips W. Professor, Agricultural and Resource Economics. B.S., Cornell University, 1953; M.S., University of Illinois (Urbana), 1956; Ph.D., 1958.

Foster, Valeria Lecturer, Part-time, Music. B.S., Morgan State University, 1977.

Fourney, William L. Professor and Chairman, Mechanical Engineering. B.S.A.E., West Virginia University, 1962; M.S., 1963; Ph.D., University of Illinois (Urbana), 1966.

Foust, Clifford M. Professor and Acting Chair, History. B.A., Syracuse University, 1949; M.A., University of Chicago, 1951; Ph.D., 1957.

Fox, Nathan A. Professor, Human Development. A.B., Williams College, 1970; Ph.D., Harvard University, 1975.

Fralstat, Neil R. Professor, English. B.A., University of Connecticut, 1974; M.A., University of Pennsylvania, 1976; Ph.D., 1979.

Francescato, Guido Professor, School of Architecture. B.Arch., University of Illinois, 1959; M.Arch., 1966.

Franda, Marcus Professor, Government and Politics; Director, Office of International Affairs. B.A., Beloit College, 1959; M.A., University of Chicago, 1960; Ph.D., 1966.

Franklin, Alan D. Visiting Professor, Physics. A.B., Princeton University, 1946; Ph.D., 1949.

Franklin, Arley Tom Development Officer, College of Education. B.S., Southwest Missouri State University, 1959; M.A., George Washington University, 1978; AGS. Columbia University, 1981.

Frederiksen, Elke P. Professor, Germanic and Slavic Languages and Literatures. M.A., University of Kiel (Germany), 1962; M.A., University of Wisconsin, 1965; Ph.D., University of Colorado, 1973.

Freeman, David H. Professor, Chemistry and Biochemistry. B.S., University of Rochester, 1952; M.S., Carnegie Institute of Technology, 1954; Ph.D., Massachusetts Institute of Technology, 1957.

Freeman, Robert Assistant Professor, Counseling and Personnel Services. B.A., Haverford College, 1951, M.A., Wesleyan College, 1954; Ph.D., University of Maryland, 1964.

Freidlin, Mark Professor, Mathematics. M.S., Moscow State University, 1959; Ph.D., Steklov Mathematical Institute, 1962; Doctor, Moscow State University, 1970.

Freimuth, Vicki S. Professor, Speech Communication. B.S., Eastern Illinois University, 1968; M.A., University of Iowa, 1967; Ph.D., Florida State University, 1974.

Freivogel, David C. Associate Staff, Accompanist, Dance. B.A., Washington University (St. Louis), 1958.

Fretz, Bruce R. Professor, Psychology. B.A., Gettysburg College, 1961; M.A., Ohio State University, 1963; Ph.D., 1965.

Frey, Jeffrey Professor, Electrical Engineering. B.S.E.E., Cornell University, 1960; M.Sc., University of California (Berkeley), 1963; Ph.D., 1965.

Friedel, Robert D. Associate Professor, History. A.B., Brown University, 1971; M.Sc., University of London, 1972; Ph.D., Johns Hopkins University, 1977.

Frieswyk, Henry Lecturer, Part-time, Geography. A.B., Clark University, 1942.

Fromovitz, Stan Associate Professor, College of Business and Management. B.A.Sc., University of Toronto, 1960; M.A., 1961; Ph.D., Stanford University, 1965.

Frosch-Schroder, Joan D. Assistant Professor, Dance. B.F.A., California Institute of the Arts, 1973; M.A., Columbia University, 1976.

Fry, Gladys-Marie Professor, English. B.A., Howard University, 1952; M.A., 1954; Ph.D., Indiana University, 1967.

Fu, Michael C. Assistant Professor, College of Business and Management. S.B., Massachusetts Institute of Technology, 1985; S.M., 1985; S.M., Harvard University, 1986; Ph.D., 1989.

Fuegi, John Professor, Comparative Literature. B.A., Pomona College, 1961; Ph.D., University of Southern California, 1967.

Fuja, Thomas E. Assistant Professor, Electrical Engineering; Assistant Professor, Institute for Systems Research. B.S. and B.S.E.E., University of Michigan, 1981; M.E., Cornell University, 1983; Ph.D., 1987.

Fullinwider, Robert K. Research Scholar, Institute for Philosophy and Public Policy. B.A., University of Kentucky, 1964; M.A., Purdue University, 1967; Ph.D., 1970.

Furuta, Richard Assistant Professor, Computer Science. B.A., Reed College, 1974; M.S., University of Oregon, 1978; Ph.D., University of Washington, 1986.

Gaines, Robert N. Associate Professor, Speech Communication. B.A., University of California (Davis), 1972; M.A., 1975; Ph.D., University of Iowa, 1982.

Galston, William A. Research Scholar, Institute for Philosophy and Public Policy; Professor, Public Affairs. B.A., Cornell University, 1967; M.A., University of Chicago, 1969; Ph.D., 1973.

Gambrell, Linda B. Professor, Curriculum and Instruction. A.A., Anderson College, 1962; B.S., University of Maryland, 1966; M.Ed., 1970; Ph.D., 1973.

Gammon, R. W. Associate Professor, Institute for Physical Science and Technology. A.B., Johns Hopkins University, 1961, M.S., California Institute of Technology, 1963; Ph.D., Johns Hopkins University, 1967.

Gannon, John D. Professor, Computer Science; Director, Undergraduate Studies. A.B., Brown University, 1970; M.S., 1972; Ph.D., University of Toronto, 1975.

Gannon, Martin J. Professor, College of Business and Management. B.A., University of Scranton, 1961; Ph.D., Columbia University, 1969.

Gantt, Elisabeth Professor. Botany. B.A., Blackburn College, 1958; M.S., Northwestern University, 1960; Ph.D., 1963

Gardner, Albert H. Associate Professor, Human Development. B.S., State University of New York (Cortland), 1958; M.A., Syracuse University, 1964; Ph.D., 1967.

Gardner, Amy E. Instructor, School of Architecture. B.Sc., University of Virginia, 1981. M.Arch., 1985.

Gardner, Bruce L. Professor, Agricultural and Resource Economics. B.S., University of Illinois, 1964; Ph.D., University of Chicago, 1968.

Gardner, Leland L. Lecturer, Part-time, College of Business and Management. B.S., University of Maryland, 1970; M.B.A., 1976.

Gasarch, William Associate Professor, Computer Science. B.S., State University of New York (Stony Brook), 1980; M.S., Harvard University, 1982; Ph.D., 1985.

Gesner, Larry L. Associate Professor, Chemical Engineering. B.S., University of Minnesota, 1965; M.S., Massachusetts Institute of Technology, 1967; Ph.D., 1971.

Gass, Saul I. Professor, College of Business and Management. B.A., Boston University, 1949; M.A., 1949; Ph.D., University of California (Berkeley), 1965.

Gast, Linda K. Director, Career Development Center; Affiliate Assistant Professor, Part-time, Counseling and Personnel Services. B.A., Indiana University, 1974; M.S., Purdue University, 1978; Ph.D., 1981.

Gates, S. James Professor, Physics. B.S., Massachusetts Institute of Technology, 1973; Ph.D., 1977.

Gaylin, Ned L. Professor, Family and Community Development. B.A., University of Chicago, 1956; M.A., 1961; Ph.D., 1965.

Gdovin, Susan L. Instructor, Microbiology. B.S., Shippensburg University, 1980; Ph.D., Johns Hopkins University, 1991.

Gelman, Ellen P. Associate Professor, Art. A.B., Brandeis University, 1961; M.F.A., Columbia University, 1964

Gelso, Charles J. Professor, Psychology. B.S., Bloomsburg State College, 1963; M.S., Florida State University, 1964; Ph.D., Ohio State University, 1970.

Gentry, James W. Professor, Chemical Engineering. B.S., Oklahoma State University, 1961; M.S., University of Birmingham, 1963; Ph.D., University of Texas, 1969.

Gentzler, Yvonne S. Assistant Professor, Industrial, Technological and Occupational Education. B.A., Geneva College, 1975; B.S., Messiah College, 1977; M.Ed., Pennsylvania State University, 1982; Ph.D., 1986.

Geraniotis, Evaggelos Professor, Electrical Engineering; Professor, Institute for Systems Research. B.S., National Tech. University of Athens, 1978; M.S., University of Illinois, 1980; Ph.D., 1983.

Gerber, Richard Assistant Professor, Computer Science. B.A., University of Pennsylvania, 1978; M.S., Cornell University, 1981; Ph.D., University of Pennsylvania, 1991.

Gerlt, John A. Professor, Chemistry and Biochemistry. B.S., Michigan State University, 1969; A.M., Harvard University, 1974; Ph.D., 1974.

Gessow, Alfred Professor, Aerospace Engineering. B.C.E., City College of New York, 1943; M.S., New York University, 1944.

Gibson, Robert L. Associate Professor, Music. B.M., University of Miami, 1972; M.M., Catholic University, 1975; D.M.A., University of Maryland, 1980.

Gilbert, Glen G. Professor and Chair, Health Education. B.S., University of Oregon, 1968; M.S., 1971; Ph.D., Ohio State University, 1975.

Gilbert, James B. Professor, History. B.A., Carleton College, 1961, M.A., University of Wisconsin, 1963; Ph.D., 1966.

Gill, Douglas E. Professor, Zoology. B.S., Marietta College, 1965; M.A., University of Michigan, 1967; Ph.D., 1971.

Gillespie, Patti P. Professor, Theatre. B.S., University of Kentucky, 1958; M.A., Western Kentucky University, 1962; Sp.Ed., 1964; Ph.D., Indiana University, 1970.

Gillian, Lonnie Ray Assistant to the President. B.S., Ohio State University, 1970; M.A., 1971.

Ginter, Marshall L. Professor, Institute for Physical Science and Technology. A.B., Chico State College, 1958; Ph.D., Vanderbilt University, 1961.

Gips, C. L. Terry Associate Professor, Art. B.S., Cornell University, 1967; M. Arch., Yale University, 1971.

Glad, John Associate Professor, Russian Language and Literature. B.A., Indiana University, 1962; M.A., 1964; Ph.D., New York University, 1970.

Glass, James M. Professor, Government and Politics. B.A., University of California (Berkeley), 1961; M.A., 1964; Ph.D., 1970.

Glaz, Harland M. Associate Professor, Mathematics. B.A., University of Pennsylvania, 1971; M.A., University of California (Berkeley), 1975; Ph.D., 1977.

Glendening, Parris N. Associate Professor, Government and Politics. B.A., Florida State University, 1964; M.A., 1965; Ph.D., 1967.

Glenn, Donald S. Associate Professor, Agronomy. B.S., University of Kentucky, 1976; Ph.D., 1980.

Glick, Arnold J. Professor, Physics. B.A., City University of New York (Brooklyn), 1955; Ph.D., University of Maryland, 1961.

Gligor, Virgil D. Professor, Electrical Engineering. B.S., University of California (Berkeley), 1972; M.S., 1973; Ph.D., 1976.

Gloeckler, George Professor, Physics. B.S., University of Chicago, 1960; M.S., 1961; Ph.D., 1965.

Glover, Rolfe E., III. Professor Emeritus, Physics. A.B., Bowdoin College, 1948; B.S., Massachusetts Institute of Technology, 1948; Ph.D., University of Goettingen (Germany), 1953.

Gluckstern, Robert L. Professor, Physics. B.E.E., City University of New York (City College), 1944; Ph.D., Massachusetts Institute of Technology, 1948.

Goering, Jacob D. Professor Emeritus, Human Development. B.A., Bethel College, 1941; Ph.D., University of Maryland, 1959.

Gold, Karen Assistant Professor, Measurement, Statistics, and Evaluation. B.S., State University of New York, Albany, 1983; M.A., University of California, Los Angeles, 1985; Ph.D., 1990.

Gold, Robert S. Professor, Health Education. A.S., Orange County Community College, 1967; B.S., State University of New York (Brockport), 1969; M.S., 1971; Ph.D., University of Oregon, 1976; Doc.P.H., University of Texas, 1980.

Goldberg, Andrew P. B.A., Clark University, 1965; M.D., State University of New York, 1969.

Goldberg, Seymour Professor, Mathematics. A.B., Hunter College, 1950; M.A., Ohio State University, 1952; Ph.D., University of California (Los Angeles), 1958.

Golden, Bruce L. Professor, College of Business and Management. B.A., University of Pennsylvania, 1972; S.M., Massachusetts Institute of Technology, 1974; Ph.D., 1976.

Goldenbaum, George C. Professor, Physics; Associate Dean, College of Computer, Mathematical and Physical Sciences. B.S., Muhlenberg College, 1957; Ph.D., University of Maryland, 1966.

Goldhaber, Jacob K. Professor, Mathematics; Acting Vice President of Academic Affairs and Provost. B.A., City University of New York (Brooklyn College), 1944; M.A., Harvard University, 1945; Ph.D., University of Wisconsin, 1950.

Goldhar, Julius Professor, Electrical Engineering. B.S., Massachusetts Institute of Technology, 1971; Ph.D., 1976.

Goldman, Harvey Associate Professor, Education Policy, Planning, and Administration. B.A., University of Rhode Island, 1960; M.A., John Carroll University, 1962; Ed.D., Michigan State University, 1966.

Goldman, William M. Professor, Mathematics; Professor, Institute for Advanced Computer Studies. A.B., Princeton University, 1977; Ph.D., University of California (Berkeley), 1980.

Goldsman, Nell Assistant Professor, Electrical Engineering. B.A., Cornell University, 1981; M.E.E., 1983; Ph.D., 1988.

Goldsmith, Daena Assistant Professor, Speech Communication. B.S., Lewis and Clark College, 1986; M.A., University of Washington, 1988; Ph.D., 1990.

Goldstein, Irwin L. Dean, College of Behavioral and Social Sciences; Professor, Psychology. B.B.A., City University of New York (City College), 1959; M.A., University of Maryland, 1962; Ph.D., 1964.

Gollub, Lewis R. Professor, Psychology. A.B., University of Pennsylvania, 1955; Ph.D., Harvard University, 1958.

Gomery, J. Douglas Professor, Journalism. B.S., Lehigh University, 1967; M.A., University of Wisconsin (Madison), 1970; Ph.D., 1975.

Gonzalez, Nancie L. Professor, Anthropology; Professor, Affiliate, Sociology. B.S., University of North Dakota, 1951; M.A., University of Michigan, 1955; Ph.D., 1959.

Good, Richard A. Professor Emeritus, Mathematics. A.B., Ashland College, 1939; M.A., University of Wisconsin, 1940; Ph.D., 1945.

Goode, M. Dennis Associate Professor, Zoology. B.S., University of Kansas, 1963; Ph.D., Iowa State University, 1967.

Goodings, Deborah J. Associate Professor, Civil Engineering. B.S., University of Toronto, 1975; Ph.D., Cambridge University, 1979.

Goodman, Jordan Professor, Physics. B.S., University of Maryland, 1973; M.S., 1975; Ph.D., 1978.

Goodrich, Charles C. Associate Research Scientist, Astronomy. B.S., Massachusetts Institute of Technology, 1972; Ph.D., 1978.

Goodwyn, Frank Professor Emeritus, Spanish and Portuguese. B.A., College of Arts and Industries, 1939; M.A., 1940; Ph.D., University of Texas, 1946.

Gordon, Donald C. Professor Emeritus, History. B.A., College of William and Mary, 1934; M.A., Columbia University, 1937; Ph.D., 1947.

Gordon, Lawrence A. Professor, College of Business and Management. B.S., State University of New York (Albany), 1966; M.B.A., 1967; Ph.D., Rensselaer Polytechnic Institute, 1973.

Gordon-Salant, Sandra M. Associate Professor, Hearing and Speech Sciences. B.A., State University of New York (Albany), 1974; M.A., Northwestern University, 1976; Ph.D., 1981.

Gore, Jayavant P. Assistant Professor, Mechanical Engineering. B.E., University of Poona, 1978; M.S., Pennsylvania State University, 1982; Ph.D., 1986.

Gorrell, Paul G. Assistant Professor, Linguistics Department. B.A., University of Connecticut, 1982; M.A., 1983; Ph.D., 1987.

Gottfredson, Denise C. Associate Professor, Institute of Criminal Justice and Criminology. B.A., Fairleigh Dickinson University, 1974; Ph.D., Johns Hopkins University, 1980.

Gouln, Francis R. Professor and Acting Chair, Horticulture. B.S., University of New Hampshire, 1962; M.S., University of Maryland, 1965; Ph.D., 1969.

Gournay, Isabelle J. Associate Professor, School of Architecture. M.A., Yale University, 1981; M.Ph., 1982; Ph.D., 1989.

Goward, Samuel N. Professor, Geography. B.A., Boston University, 1967; M.A., 1974; Ph.D., Indiana State University, 1979.

Gowen, Bradford Associate Professor, Music. B.M., Eastman School of Music, 1968; M.M., 1969.

Grabis-Bunker, Jackie M. Lecturer, Curriculum and Instruction; Coordinator, Charles County Education Center. B.S., Frostburg, 1971; M.Ed., George Washington University, 1981.

Graeber, Anna O. Associate Professor, Curriculum and Instruction. B.S., State University of New York (Buffalo), 1964; M.S., Indiana State University, 1965; Ed.D., Teachers College, Columbia University, 1974.

Graham, Steven Professor, Special Education. B.A., Valdosta State College, 1972; M.S., 1975; Ed.D., University of Kansas, 1978.

Granatstein, Victor L. Professor, Electrical Engineering; Director, Laboratory for Plasma Research. B.S., Columbia University, 1960; M.S., 1961; Ph.D., 1963.

Grant, Lee P. Associate Professor, Agricultural Engineering. B.S., University of Connecticut, 1962; M.S., Pennsylvania State University, 1971; Ph.D., 1974.

Grant, Rachel Assistant Professor, Curriculum and Instruction. B.A., Howard University, 1973; M.A., University of the District of Columbia, 1975; Ph.D., University of Maryland, 1990.

Gray, Alfred Professor, Mathematics. B.A., University of Kansas, 1960; M.A., 1961; Ph.D., University of California (Los Angeles), 1964.

Grebogi, Celso Associate Professor, Institute for Physical Science and Technology; Associate Professor, Mathematics; Associate Professor, Laboratory for Plasma Research. B.S., Federal University of Brazil, 1970; M.S., University of Maryland, 1975; Ph.D., 1978.

Green, Harry B., Jr. Assistant Professor, Human Development. B.A., University of Virginia, 1959; M.Ed., 1963; Ph.D., 1965.

Green, Paul S. Professor, Mathematics. B.A., Cornell University, 1959; M.A., Harvard University, 1960; Ph.D., Cornell University, 1964.

Green, Rebecca Assistant Professor, College of Library and Information Services. A.B., Harvard University, 1973; M.L.S., University of Maryland, 1977; M.A., University of California (Berkeley), 1982; Ph.D., University of Maryland, 1989.

Green, Robert L. Professor Emeritus, Agricultural Engineering. B.S.A.E., University of Georgia, 1934; M.S., State College of Iowa, 1939; Ph.D., Michigan State University, 1953.

Greenberg, Jerrold S. Professor, Health Education. B.S., City College of New York, 1964; M.S., 1965; Ed.D., Syracuse University, 1969.

Greenberg, Kenneth R. Associate Professor, Counseling and Personnel Services. B.S., Ohio State University, 1951; M.A., 1952; Ph.D., Case Western Reserve University, 1960.

Greenberg, Leon Professor, Mathematics. B.S., City University of New York (City College), 1953; M.A., Yale University, 1955; Ph.D., 1958.

Greenberg, Oscar W. Professor, Physics. B.S., Rutgers The State University, 1952; A.M., Princeton University, 1954; Ph.D., 1956.

Greenberg, Ronald I. Assistant Professor, Electrical Engineering; Assistant Professor, Institute for Advanced Computer Studies. A.B., Washington University, 1983; B.S., 1983; M.S., 1983; Ph.D., Massachusetts Institute of Technology, 1989.

Greene, Richard L. Professor, Physics. B.S., Massachusetts Institute of Technology, 1960; Ph.D., Stanford University, 1967.

Greene-Gantzberg, Vivian Y. Assistant Professor, Germanic and Slavic Languages. B.A., Spellman College, 1970; M.A., University of Illinois, 1972; Ph.D., 1976.

Greenspan, Patricia Professor, Philosophy. A.B., Columbia University, 1966; A.M., Harvard University, 1968; Ph.D., 1972.

Greer, Sandra C. Professor and Chair, Chemistry and Biochemistry. B.S., Furman University, 1966; M.S., University of Chicago, 1968; Ph.D., 1969.

Greer, Thomas V. Professor, College of Business and Management. B.A., University of Texas, 1953; M.B.A., Ohio State University, 1957; Ph.D., University of Texas, 1964.

Griem, Hans Professor, Physics; Professor, Laboratory for Plasma Research. Bach., Max Planck Schule, 1949; Ph.D., University of Kiel, 1954.

Griffin, James J. Professor, Physics. B.S., Villanova College, 1952; M.S., Princeton University, 1955; Ph.D., 1956.

Griffith, Robert Professor, History; Dean, College of Arts and Humanities. B.A., DePauw University, 1962; M.A., University of Wisconsin, 1964; Ph.D., 1967.

Grillakis, Manoussos Associate Professor, Mathematics. B.A., National Technical University (Athens, Greece), 1981; M.A., Brown University, 1983; Ph.D., 1986.

Grim, Samuel O. Professor, Chemistry and Biochemistry. B.S., Franklin and Marshall College, 1956; Ph.D., Massachusetts Institute of Technology, 1960.

Grimm, Curtis M. Associate Professor, College of Business and Management. B.A., University of Wisconsin, 1975; M.A., University of California, 1980; Ph.D., 1983.

Grimshaw, Scott D. Assistant Professor, College of Business and Management. B.S., Southern Utah State College, 1983; M.S., Texas A&M University, 1985; Ph.D., 1989.

Grimsted, David A. Associate Professor, History. A.B., Harvard University, 1957; M.A., University of California (Berkeley), 1958; Ph.D., 1963.

Gromov, Mikheel Professor, Mathematics. M.A., University of Leningrad, 1965; Ph.D., 1969.

Grossman, Marshall Associate Professor, English. B.A., State University of New York, Binghamton, 1965; M.A., Brooklyn College, 1973; Ph.D., New York University, 1977.

Grove, Karsten Professor, Mathematics. Cand. Scient., University of Aarhus, 1971; Lic. Scient., 1974.

Grover, Girish A. Assistant Professor, Textiles and Consumer Economics. B. Textiles, Bombay University (New Delhi), 1982; M.S., North Carolina State University, 1984; Ph.D., 1989.

Groves, Paul A. Associate Professor, Geography. B.S., University of London, 1956; M.A., University of Maryland, 1960; Ph.D., University of California (Berkeley), 1969.

Grunig, James E. Professor, College of Journalism. B.S., Iowa State University, 1964; M.S., University of Wisconsin, 1966; Ph.D., 1968.

Grunig, Larissa A. Associate Professor, College of Journalism. B.A., North Dakota State University, 1967; M.A., University of Maryland, 1978; Ph.D., 1985.

Grybauskas, Arvydas P. Associate Professor, Botany. B.S., University of Illinois (Urbana), 1976; M.S., 1977; Ph.D., Oregon State University, 1983.

Gulick, Sidney L., III Professor, Mathematics. B.A., Oberlin College, 1958; M.A., Yale University, 1960; Ph.D., 1963.

Gullickson, Gay L. Associate Professor, History. B.A., Pomona College, 1965; B.D., Yale University Divinity School, 1968; S.T.M., 1970; Ph.D., University of North Carolina (Chapel Hill), 1978.

Gupta, Anil K. Associate Professor, College of Business and Management. B. of Tech., Indian Institute of Technology, 1970; D.B.A., Harvard Business School, 1980.

Gupta, Ashwani K. Professor, Mechanical Engineering. B.Sc., Panjab University (India), 1966; M.Sc., University of Southampton (England), 1970; Ph.D., University of Sheffield, 1973; D.Sc., University of Southampton (England), 1986.

Gurevitch, Michael Professor, College of Journalism. B.A., Hebrew University of Jerusalem, 1953; M.A., University of Chicago, 1958; Ph.D., Massachusetts Institute of Technology, 1961.

Gurney, Gerald S. Affiliate Assistant Professor, Kinesiology. B.A., Ohio State University, 1973; M.A., 1976; Ph.D., Iowa State University, 1980.

Gurr, Ted Robert Professor, Government and Politics. B.A., Reed College, 1957; Ph.D., New York University, 1965.

Guthrie, John T. Professor, Human Development. B.A., Earlham College, 1964; M.A., University of Illinois, 1966; Ph.D., 1968.

Guzzo, Richard A. Associate Professor, Psychology. B.S., Ohio State University, 1974; M.A., Yale University, 1976; Ph.D., 1979.

Gwadze, Robert W. Adjunct Professor, Entomology. B.S., University of Notre Dame, 1962; Ph.D., 1970.

Hacklander, Effie Assistant Professor, Textiles and Consumer Economics; Assistant Professor, Health Education. B.S., University of Minnesota, 1962; M.S., Michigan State University, 1968; Ph.D., 1973

Hadley, Nicholas J. Associate Professor, Physics. B.S., Yale University, 1976; M.A., University of California (Berkeley), 1978; Ph.D., 1983.

Hafez, Yousef Associate Professor (UMES), Nutritional Sciences Program. B.S., University of Cairo, 1964; M.S., University of Kentucky, 1972; Ph.D., University of California (Davis), 1975.

Hagberg, James M. Associate Professor, Kinesiology. B.S., Carthage College, 1972; M.S., University of Wisconsin (Madison), 1974; Ph.D., 1976.

Hage, Jerald Professor, Sociology. B.B.A., University of Wisconsin, 1955; Ph.D., Columbia University, 1963.

Hage, Madeleine Associate Professor, French and Italian. C.A.P.E.T., Ecole Normale Superieur de l'Enseignement Techniqu, 1955, Agregation (English), University of Paris, Sorbonne, 1965; Doctorat de Troisieme Cycle, University of Nancy (France), 1973.

Haghani, Ali Assistant Professor, Civil Engineering. B.S., Shiraz University, 1976; M.S., Northwestern University, 1982; Ph.D., 1986.

Heidemann, Paul R. Engineering Physicist, Electrical Engineering. B.S., University of Maryland, 1959; M.S., 1964

Heley, A. James Professor Emeritus, Zoology. B.S., University of New Hampshire, 1949; M.S., 1950; Sc.D., Johns Hopkins University, 1955.

Hellassos, Michael Assistant Professor, Economics. B.A., University of Cambridge (U.K.), 1981; M.A., 1986; Ph.D., Yale University, 1987.

Hell, William S. Professor, Psychology. A.B., Roosevelt University (Chicago), 1957; Ph.D., University of Chicago, 1968

Hellett, Judith P. Associate Professor, Classics. A.B., Wellesley College, 1966; A.M., Harvard University, 1967; Ph.D., 1971.

Heltiwanger, John Professor, Economics. Sc.B., Brown University, 1977, Ph.D., Johns Hopkins University, 1981.

Hamed, Safei E. Assistant Professor, Horticulture. B.S., Cairo University, 1968; M.L.A., University of Georgia, 1973; Ph.D., Virginia Polytechnic Institute & State University, 1988.

Hamilton, Arthur B. Associate Professor Emeritus, Agricultural and Resource Economics. B.S., University of Maryland, 1929; M.S., 1931.

Hamilton, David H. Professor, Mathematics. B.Sc., Tasmania University, 1977; M.Sc., University of London, 1978; Ph.D., 1980.

Hamilton, Donna B. Professor, English; Acting Associate Dean for Graduate Studies, College of Arts and Humanities. B.A., Saint Olaf College, 1963; Ph.D., University of Wisconsin, 1968.

Hamilton, Douglas C. Associate Professor, Physics; Associate Professor, Institute for Physical Science and Technology. A.B., University of Kansas, 1969; S.M., University of Chicago, 1971; Ph.D., 1977.

Hamilton, Gary D. Associate Professor, English. B.A., Saint Olaf College, 1962; M.A., University of Wisconsin, 1965; Ph.D., 1968.

Hamilton, V. Lee Professor, Sociology. B.A., College of William and Mary, 1970; Ph.D., Harvard University, 1975.

Hammond, Eugene R. Associate Professor, English. B.A., University of Notre Dame, 1969; B.A., Oxford University, 1973; Ph.D., Yale University, 1977.

Hammond, William M. Lecturer, Part-time, University Honors Program. S.T.B., Catholic University of America, 1968; M.A, 1970; Ph.D., 1973.

Handelman, Susan Professor, English. B.A., Smith College, 1971; M.A., State University of New York (Buffalo), 1977; Ph.D., 1979.

Hanges, Paul J. Assistant Professor, Psychology. B.A., New York University, 1980; M.A., University of Akron, 1984; Ph.D., 1987.

Hanna, Judith L. Senior Faculty Research Associate, Family and Community Development. B.A., University of California (Los Angeles), 1958; M.A., Michigan State University, 1962; M.A., Columbia University, 1975; Ph.D., 1976.

Hanna, William J. Professor, Urban Studies. B.S., University of California (Los Angeles), 1957; M.A., 1960; Ph.D., 1962.

Hansen, J. Norman Professor, Chemistry and Biochemistry. B.A., Drake University, 1964; Ph.D., University of California (Los Angeles), 1968.

Hanson, James C. Farm Management Specialist, Agricultural and Resource Economics. B.S., University of Maryland, 1972; M.Sc., University of Minnesota (St. Paul), 1974; M.Sc., University of Maryland, 1978; Ph.D., 1983.

Hao, Oliver J. Associate Professor, Civil Engineering. B.S., Cheng Kung University, Taiwan, 1980; M.S., Colorado State University, 1971; Ph.D., University of California (Berkeley), 1982.

Hardie, Ian W. Associate Professor, Agricultural and Resource Economics. B.S., University of California (Davis), 1960; Ph.D., University of California (Berkeley), 1965.

Hardy, Kendrall C. Lecturer, Part-time, College of Business and Management. B.S., University of Baltimore, 1968; J.D., 1972.

Hardy, Robert C. Professor and Chair, Human Development. B.S.Ed., Bucknell University, 1961; M.S.Ed., Indiana University, 1964, Ed.D., 1969.

Harger, Robert O. Professor, Electrical Engineering. B.S., University of Michigan, 1955; M.S., 1959; Ph.D., 1961.

Hargrove, June E. Professor, Art History. B.A., University of California (Berkeley), 1968; M.A., New York University, 1971; Ph.D., 1976.

Harhalakis, George Associate Professor, Mechanical Engineering; Associate Director of Education, Institute for Systems Research. B.S., National Technical University of Athens (Greece), 1971; M.S., Univ. of Manchester Inst. of Sci. & Tech.(England), 1981; Ph.D., 1984.

Harlan, Louis R. Professor Emeritus, History. B.A., Emory University, 1943; M.A., Vanderbilt University, 1948; Ph.D., Johns Hopkins University, 1955.

Harley, Sharon Associate Professor; Acting Director, Afro-American Studies. B.A., St. Mary of The Woods College, 1970; M.A., Antioch College, 1971; Ph.D., Howard University, 1981.

Harper, Glenn Assistant Professor, Sociology. B.S., Purdue University, 1958; M.S., 1961; Ph.D., 1968.

Harper, Robert A. Professor Emeritus, Geography. Ph.B., University of Chicago, 1946; B.S., 1947; M.S., 1948; Ph.D., 1950.

Harrington, J. Patrick Professor, Astronomy. B.S., University of Chicago, 1961; M.S., Ohio State University, 1964; Ph.D., 1967.

Harris, James F. Associate Professor, History. B.S., Loyola University, 1962; M.S., University of Wisconsin, 1964; Ph.D., 1968.

Harris, Karen R. Associate Professor, Special Education. B.A., University of Northern Colorado, 1974; M.A., University of Nebraska, 1978; Ed.D., Auburn University, 1981.

Harris, Wesley L. Professor Emeritus, Agricultural Engineering. B.S.A.E., University of Georgia, 1953; M.S., 1958; Ph.D., Michigan State University, 1969.

Harrison, Floyd P. Professor Emeritus, Entomology. B.S., Louisiana State University, 1951; M.S., 1953; Ph.D., University of Maryland, 1955.

Harrison, Horace V. Professor Emeritus, Government and Politics. B.A., Trinity University (Texas), 1932; M.A., University of Texas, 1941; Ph.D., 1951.

Harry, G. Elizabeth Assistant Professor, Special Education. B.A., University of Toronto, 1967; M.Ed., 1973; Ph.D., Syracuse University, 1988.

Hart-Litz, Kathleen Instructor, Hearing and Speech Sciences. B.A., University of Denver, 1979; M.A., 1981.

Harter, Philip J. Lecturer, Part-time, School of Public Affairs. A.B., Kenyon College, 1964; M.A., University of Michigan, 1966; J.D., 1969.

Hartsock, Thomas G. Associate Professor, Animal Sciences. B.S., Pennsylvania State University, 1968; M.S., 1969; Ph.D., 1974.

Harwood, William S. Undergraduate Program Coordinator, Chemistry and Biochemistry. B.S., University of Massachusetts (Amherst), 1980; Ph.D., Purdue University, 1986.

Haslach, Henry W., Jr. Assistant Professor, Mechanical Engineering. B.S. Trinity College, 1964; M.S., University of Chicago, 1965; M.S., University of Wisconsin, 1979, Ph.D., 1979.

Haslem, John A. Professor, College of Business and Management. A.B., Duke University, 1956; M.B.A., University of North Carolina, 1961; Ph.D., 1967.

Hassam, Adil B. Associate Professor, Physics; Associate Professor, Laboratory for Plasma Research. S.B./S.M., Massachusetts Institute of Technology, 1974; M.A., Princeton University, 1976; Ph.D., 1978.

Hatfield, Bradley D. Associate Professor, Kinesiology. B.P.E., University of New Brunswick, 1974; B.A., 1975; M.S., Pennsylvania State University, 1976; M.S.A., Ohio University, 1982; Ph.D., Pennsylvania State University, 1982.

Haufler, Virginia A. Assistant Professor, Government and Politics. B.A., Pennsylvania State University, 1979; M.A., Cornell University, 1985; Ph.D., 1990.

Hauser, Michael G. Adjunct Professor, Astronomy. B.S., Cornell University, 1962; Ph.D., California Institute of Technology and Physics, 1967.

Hawkins, William Lecturer, Part-time, Electrical Engineering. B.S., Cornell University, 1967; S.M., Massachusetts Institute of Technology, 1971.

Head, Emerson W. Professor, Music. B.Mus., University of Michigan, 1957; M.Mus., 1961; D.M.A., Catholic University of America, 1980.

Heath, James L. Professor and Acting Chair, Poultry Science. B.S., Louisiana State University, 1963; M.S., 1968; Ph.D., 1970.

Hebeler, Jean R. Professor, Special Education; Acting Dean, College of Education. B.S., State University of New York (Albany), 1953; M.S., University of Illinois (Urbana), 1956; Ed.D., Syracuse University, 1960.

Hebert, Mitchell Patrick Associate Professor, Theatre. B.F.A., University of Wisconsin, 1980; M.F.A., University of Washington, 1983.

Hedman, Susan Assistant Professor, School of Public Affairs. B.A., Ripon College, 1978; M.A., University of Wisconsin (LaFollette Institute), 1979; J.D., University of Wisconsin (School of Law), 1987; Ph.D., University of Wisconsin (Institute of Env.Studies), 1989.

Heid, Camilla A. Assistant Professor, Education Policy, Planning, and Administration. B.A., Indiana University, 1973; M.S., 1976; Ph.D., 1985.

Heidelbach, Ruth A. Associate Professor, Curriculum and Instruction; B.S., University of Maryland, 1949; M.Ed., University of Florida, 1957; Ed.D., Teachers College, Columbia University, 1967.

Heifetz, Daniel Professor, Music. Artist Diploma, Curtis Institute of Music, 1971.

Heilprin, Laurence B. Professor Emeritus, College of Library and Information Services. B.S., University of Pennsylvania, 1928; M.A., 1931; Ph.D., Harvard University, 1941.

Heins, Maurice H. Professor Emeritus, Mathematics. A.B., Harvard University, 1937; A.M., 1939; Ph.D., 1940; A.M., Brown University, 1947.

Heisler, Martin O. Associate Professor, Government and Politics. B.A., University of California (Los Angeles), 1960; M.A., 1962; Ph.D., 1969.

Hellman, John L. Associate Professor, Entomology. B.S., University of Maryland, 1966; M.S., 1968; Ph.D., 1975.

Helm, Eugene E. Professor, Music. B.Mu.Ed., Southeastern Louisiana College, 1950; M.Mu.Ed., Louisiana State University, 1955; Ph.D., North Texas State University, 1958.

Helms, Janet E. Professor, Psychology. B.A., University of Missouri (Kansas City), 1968; M.A., 1972; Ph.D., Iowa State University, 1975.

Helz, George R. Professor, Chemistry and Biochemistry. A.B., Princeton University, 1964; Ph.D., Pennsylvania State University, 1971.

Helzer, Garry A. Associate Professor, Mathematics. B.A., Portland State College, 1959; M.A., Northwestern University, 1962; Ph.D., 1964.

Hendler, James A. Associate Professor, Computer Science; Associate Professor, Institute for Systems Research. B.S., Yale University, 1978; M.S., Southern Methodist University, 1982; M.S., Brown University, 1983; Ph.D., 1985.

Henery-Logan, Kenneth R. Professor Emeritus, Chemistry and Biochemistry. B.Sc., McGill University, 1942; Ph.D., 1946.

Henkel, Ramon Associate Professor, Sociology. Ph.B., University of North Dakota, 1958; M.A., University of Wisconsin, 1961; Ph.D., 1967.

Henretta, James A. Priscilla Alden Burke Professor, History. B.A., Swarthmore College, 1962; M.A., Harvard University, 1963; Ph.D., 1968.

Herb, Rebecca A. Professor, Mathematics. B.A., University of Oregon, 1969; M.A., 1970; Ph.D., University of Washington, 1974.

Herin, Christoph A. Professor Emeritus, Germanic and Slavic Languages and Literatures. Ph.D., University of Bonn, 1950.

Herman, Eliot M. Adjunct Associate Professor, Botany. B.A., University of California (Santa Barbara), 1973; M.A., 1975; Ph.D., University of California (San Diego), 1980.

Herman, Harold J. Associate Professor, English. B.A., University of Maryland, 1952; Ph.D., University of Pennsylvania, 1960.

Herman, Richard H. Professor, Mathematics; Dean, Computer, Mathematical, and Physical Sciences. B.S., Stevens Institute of Technology, 1963; Ph.D., University of Maryland, 1967.

Herman, Wayne L. Associate Professor, Curriculum and Instruction. B.A., Ursinus College, 1955; M.Ed., Temple University, 1960; Ed.D., 1965.

Herndon, James W. Associate Professor, Chemistry and Biochemistry. B.S., University of North Carolina (Greensboro), 1979; M.A., Princeton University, 1980; Ph.D., 1983.

Herndon, Marcia Professor, Music. B.A., Newcomb College, 1962; M.A., Tulane University, 1964; Ph.D., 1971.

Herold, Keith E. Assistant Professor, Mechanical Engineering. B.S.M.E., University of Akron, 1977; M.S., Ohio State University, 1979; Ph.D., 1985.

Herrnson, Paul S. Assistant Professor, Government and Politics. B.A., State University of New York (Binghamton), 1981; M.A., Georgetown University, 1982; M.A., University of Wisconsin (Madison), 1983; Ph.D., 1986.

Herschbach, Dennis R. Associate Professor, Industrial, Technological and Occupational Education; Associate Professor, Education Policy, Planning, and Administration. B.A., San Jose State College, 1960; M.S., University of Illinois (Urbana), 1968; Ph.D., 1973.

Hershenson, David B. Professor, Counseling and Personnel Services. A.B., Harvard University, 1955, A.M., Boston University, 1960; Ph.D., 1964.

Hershey, David R. Assistant Professor, Horticulture. B.S., The Pennsylvania State University, 1977; M.S., University of California (Davis), 1980; Ph.D., 1983.*

Hester, Ronald D. Lecturer, Part-time, Afro-American Studies. B.A., San Francisco State University, 1973, M.P.A., University of Southern California, 1975; Ph.D., University of Maryland, 1987.

Hetrick, Frank M. Professor Emeritus, Microbiology. B.S., Michigan State University, 1954; M.S., University of Maryland, 1960; Ph.D., 1962.

Hevner, Alan R. Associate Professor, College of Business and Management; Associate Professor, Institute for Systems Research. B.S., Purdue University, 1973; M.S., 1976; Ph.D., 1973.

Hewitt, Mary A. Instructor, Part-time, Industrial, Technological and Occupational Education. B.S., University of Kentucky, 1969; M.A., Western Michigan University, 1973.

Heyneman, Stephen P. Adjunct Professor, Education, Policy, Planning and Administration. B.A., University of California (Berkeley), 1964; M.A., University of California (Los Angeles), 1965; M.A., University of Chicago, 1973; Ph.D., 1975.

Hickey, Michael E. Adjunct Professor, Education Policy, Planning, and Administration. B.A., University of Washington (Seattle), 1964; M.A., 1968; Ph.D., 1969.

Hiebert, Ray E. Professor, College of Journalism. B.A., Stanford University, 1954; M.S., Columbia University, 1957; M.A., University of Maryland, 1961; Ph.D., 1962.

Higgins, William J. Associate Professor, Zoology. B.S., Boston College, 1969; Ph.D., Florida State University, 1973.

Highton, Richard Professor, Zoology. B.A., New York University, 1950; M.S., University of Florida, 1953; Ph.D., 1956.

Hill, Clara E. Professor, Psychology. B.A., Southern Illinois University, 1970; M.A., 1972; Ph.D., 1974.

Hill, Elwood F. Adjunct Associate Professor, Poultry Science. B.S., San Jose State University, 1961; M.S., University of Maryland, 1975; Ph.D., 1981.

Hill, John W. Professor, School of Architecture. B.A., Rice University, 1951; B.Arch., 1952; M.Arch., University of Pennsylvania, 1959.

Hill, Robert L. Associate Professor, Agronomy. B.S., North Carolina State University, 1974; M.S., 1981, Ph.D., Iowa State University, 1984.

Hill, Wendell T., III Associate Professor, Institute for Physical Science and Technology. B.A., University of California (Irvine), 1974, M.S., Stanford University, 1976; Ph.D., 1980.

Hilsenrath, Elmina J. Adjunct Assistant Professor, Horticulture. B.S., University of Massachusetts, 1970; H.L.A., 1973.

Hines, Anson H. Adjunct Associate Professor, Zoology B.A., Pomona College, 1969; Ph.D., University of California (Berkeley), 1976.

Hitchcock, Donald R. Associate Professor, Russian Language and Literature. B.A., University of Maryland, 1952; M.A., Harvard University, 1954, Ph.D., 1965.

Ho, Ping-Tong Associate Professor, Electrical Engineering. S.B., Massachusetts Institute of Technology, 1973; S.M., 1975; Sc.D., 1978.

Hochuli, Urs E. Professor Emeritus, Electrical Engineering. B.S., Technikum Biel, Switzerland, 1950; M.S., University of Maryland, 1955; Ph.D., Catholic University of America, 1962.

Hodos, William Professor, Psychology B.S., City University of New York (Brooklyn College), 1955; M.A., University of Pennsylvania, 1957; Ph.D., 1960.

Hoff, Karla Assistant Professor, Economics. B.A., Wellesley College, 1974; M.A.L.D., Tufts University, 1979; Ph.D., Princeton University, 1989

Hoffman, Mary Ann Associate Professor, Counseling and Personnel Services. B.A., Macalester College, 1971, Ph.D., University of Minnesota, 1975.

Hoffman, Ronald Professor, History. B.A., George Peabody College, 1964; M.A., University of Wisconsin, 1965; Ph.D., 1969.

Hogan, David J. Adjunct Associate Professor, Education Policy, Planning, and Administration. Bach. of Econ., University of Sydney, 1968; B.A., 1971, M.Ed., University of Illinois, 1975; Ph.D., 1978.

Hohenhaus, Guy S. Instructor, College of Veterinary Medicine. B.S., University of Maryland, 1988; D.V.M, University of Minnesota. 1990.

Holliday, William Professor, Curriculum and Instruction. B.S., Purdue University, 1963; M.S., 1968; Ph.D., University of Texas (Austin), 1970.

Holloway, David C. Professor, Mechanical Engineering. B.S., University of Illinois (Urbana), 1966; M.S., 1969, Ph.D., 1971.

Holloway, Susan D. Associate Professor, Human Development. B.A., University of California (Santa Cruz), 1976, Education Specialist, Stanford University, 1982; Ph.D., 1983.

Holman, Benjamin F. Professor, College of Journalism. B.S., University of Kansas, 1952.

Holmgren, Harry D. Professor, Physics. B.S., University of Minnesota, 1949; M.A., 1950; Ph.D., 1954.

Holmlund, Chester E. Professor Emeritus, Chemistry and Biochemistry. B.S., Worcester Polytechnic Institute, 1943; M.S., 1951, Ph.D., University of Wisconsin, 1954.

Holt, Stephen Adjunct Professor, Astronomy B.S., New York University, 1961; Ph.D., 1966.

Holton, W. Milne Professor, English. B.A., Dartmouth College, 1954; L.L.B., Harvard University, 1957; M.A., Yale University, 1959; Ph.D., 1965.

Holum, Kenneth Associate Professor, History. B.A., Augustana College, 1961; M.A., University of Chicago, 1969; Ph.D., 1973.

Hopkins, Richard L. Associate Professor, Education Policy, Planning, and Administration. B.S., Stanford University, 1962; M.S., 1963, Ph.D., University of California (Los Angeles), 1969.

Hornbake, R. Lee Professor Emeritus, Industrial, Technological and Occupational Education; Vice President for Academic Affairs Emeritus. B.S., California State College (Pennsylvania), 1934, M.A., Ohio State University, 1936; Ph.D., 1942; L.L.D., Eastern Michigan University, 1963

Hornstein, Norbert Professor, Linguistics Department. B.A., McGill University, 1975; Ph.D., Harvard University, 1979

Hornyak, William F. Professor Emeritus, Physics. B.E.E, City University of New York (City College), 1944; M.S., California Institute of Technology, 1946, Ph.D., 1949

Horowitz, John K. Assistant Professor, Agricultural and Resource Economics. B.S., Washington State University, 1982; M.A., 1985; Ph.D., University of California, San Diego, 1988.

Horton, David L. Professor, Psychology B.A., University of Minnesota, 1955; M.A., 1957, Ph.D., 1959

Horty, John Assistant Professor, Philosophy, Assistant Professor, Institute for Advanced Computer Studies. B.A., Oberlin College, 1977; Ph.D., University of Pittsburgh, 1986.

Horvath, John M. Professor, Mathematics. Ph.D., University of Budapest, 1947

Howard, John D. Professor, English. B.A., Washington College (Maryland), 1956; M.A., University of Maryland, 1962; Ph.D., 1967

Howe, Ann C. Professor and Chairperson, Curriculum and Instruction. B.A., University of Richmond, 1947; M.S., University of North Carolina, 1949, Ph.D., University of Texas at Austin, 1969

Howland, Marie Associate Professor and Director, Urban Studies. B.A., University of California (Berkeley), 1972; M.C.P., 1974; Ph.D., Massachusetts Institute of Technology, 1981.

Hoyert, John H. Professor Emeritus, Agronomy. B.S., University of Maryland, 1943; M.S., 1949; Ph.D., 1951.

Hrabowski, Freemen A, III Adjunct Associate Professor, Education Policy, Planning, and Administration. B.A., Hampton Institute, 1970; M.A., University of Illinois, 1971; Ph.D., 1975.

Hrutka, Mary Ellen Director, Experiential Learning Programs; Affiliate Assistant Professor, Counseling and Personnel Services. B.A., Southern Connecticut State University, 1968; M.A., University of Maryland, 1970; Ph.D., University of Miami, 1983.

Hsu, Hei-ti Adjunct Professor, Entomology. B.S., Taiwan Chung-Hsing University, 1962; M.S., University of the Philippines, 1967; Ph.D., University of Illinois, 1971.

Hsueh, Chun-Tu Professor, Government and Politics. L.L.B., Chaoyang University (China), 1946; M.A., Columbia University, 1953; Ph.D., 1958.

Hu, Bei-Lok Professor, Physics. A.B., University of California (Berkeley), 1967; M.A., Princeton University, 1969; Ph.D., 1972.

Huang, Helen Q. Assistant Professor, Theatre. B.F.A., Central Academy of Drama (Beijing), 1982; M.F.A., University of Missouri (Kansas City), 1988.

Hudak, Bonita L. Instructor, Part-time, Special Education. B.S., Towson State University, 1971; M.A., Loyola College, 1975.

Huden, Daniel P. Associate Professor, Education Policy, Planning, and Administration. B.S., University of Vermont, 1954; M.A., Columbia Teachers College, 1958; Ed.D., 1967.

Hudson, Robert D. Professor and Chairman, Meteorology. B.S. (Hons), University of Reading, U.K., 1956; Ph.D., 1959.

Hudson, William L. Professor, Music. B.Mus., Philadelphia Music Academy, 1954; A.B., University of Pennsylvania, 1957; M.Mus., Yale University, 1961.

Huebner, Robert W. Associate Professor, Human Development. B.S., Concordia Teachers College, 1957; M.A., 1960; Ph.D., University of Maryland, 1969.

Hueth, Darrell L. Professor, Agricultural and Resource Economics. B.S., Montana State University, 1959; M.S., 1969; Ph.D., University of California (Berkeley), 1973.

Huheey, James E. Professor, Chemistry and Biochemistry. B.S., University of Cincinnati, 1957; M.S., University of Illinois, 1959; Ph.D., 1961.

Hula, Richard C. Associate Professor, Urban Studies. B.A., Michigan State University, 1969; M.A., Northwestern University, 1970; Ph.D., 1975.

Huling, John Jr. Instructor, Part-time, Music. B.M., New England Conservatory of Music, 1980.

Hult, Joan S. Associate Professor, Kinesiology. B.S., Indiana University, 1954; M.Ed., University of North Carolina (Greensboro), 1958; Ph.D., University of Southern California, 1967.

Hulten, Charles R. Professor, Economics. A.B., University of California (Berkeley), 1965; Ph.D., 1973.

Hultgren, Francine H. Associate Professor, Industrial, Technological and Occupational Education; Associate Professor, Education Policy, Planning, and Administration. B.S., University of Minnesota, 1968; M.S., North Dakota State University, 1977; Ph.D., Pennsylvania State University, 1982.

Hummel, James A. Professor, Mathematics. B.S., California Institute of Technology, 1949, M.A., Rice University, 1953, Ph.D., 1955.

Humphrey, James H. Professor Emeritus, Kinesiology A.B., Denison University, 1933; M.A., Western Reserve University, 1946; Ed.D., Boston University, 1951

Humphrey, Jay D. Assistant Professor, Mechanical Engineering. B.S., Virginia Polytechnic Institute, 1981, M.S., Georgia Institute of Technology, 1982; Ph.D., 1985.

Humphrey, Margo Assistant Professor, Art. B.F.A., California College of Arts and Crafts, 1973; M.F.A., Stanford University, 1974.

Hunt, Janet G. Associate Professor, Sociology. B.A. University of Redlands, 1962; M.A., Indiana University, 1966; Ph.D., 1973.

Hunt, Larry L. Associate Professor, Sociology. B.S., Ball State University, 1961; M.A., Indiana University, 1964; Ph.D., 1968.

Hurley, Bernard F., Jr. Associate Professor, Kinesiology. B.A., University of South Florida, 1972; M.A., 1975; Ph.D., Florida State University, 1981.

Hurtt, Steven W. Professor and Dean, School of Architecture. A.B., Princeton University, 1963; M.F.A., 1965; M. Arch., Cornell University, 1969.

Husman, Burris F. Professor Emeritus, Kinesiology. B.S., University of Illinois (Urbana), 1941; M.S., 1948; Ed.D., University of Maryland, 1954.

Hutcheson, Steven W. Associate Professor, Botany. A.B., University of California (Santa Cruz), 1975; Ph.D., University of California (Berkeley), 1982.

Hyde, David H. Instructor, Health Education; Director, Undergraduate Studies. B.S., State University College (Brockport, NY), 1968; M.S., 1973; Ph.D., University of Maryland, 1992.

Hyman, Glori D. Instructor, Part-time, Institute of Applied Agriculture. B.A., James Madison University, 1984; M.S., Towson State University, 1990.

Igel, Regina Associate Professor, Spanish and Portuguese. M.A., State University of Iowa, 1969; Ph.D., University of New Mexico, 1973.

Iliadis, Agisilaos Associate Professor, Electrical Engineering. B.S., Aristotelian University of Thessaloniki, 1975; M.S., University of Manchester, 1976; Ph.D., 1980.

Imberski, Richard B. Associate Professor, Zoology. B.S., University of Rochester, 1959; Ph.D., 1966.

Ingle, Marcus D. Affiliate Assistant Professor, Agricultural and Extension Education. B.A., University of California, 1965; M.P.A., University of Washington, 1967; M.Phil., Syracuse University, 1975; Ph.D., 1977.

Ingling, Allen L. Assistant Professor, College of Veterinary Medicine. B.S.E.E., University of Maryland, 1963; V.M.D., University of Pennsylvania, 1969.

Inouye, David W. Associate Professor, Zoology; Affiliate Associate Professor, Botany. B.A., Swarthmore College, 1971; Ph.D., University of North Carolina, 1976.

Iozzi, Alessandra Assistant Professor, Mathematics. Laurea, University of Rome, 1982; S.M., University of Chicago, 1985; Ph.D., 1989.

Irwin, George R. Professor, Part-time, Mechanical Engineering. A.B., Knox College, 1930; M.S., University of Illinois (Urbana), 1933; Ph.D., 1937; Hon. Doctor of Engineering, Lehigh University, 1977.

Isaacs, Neil D. Professor, English. A.B., Dartmouth College, 1953; A.M., University of California (Berkeley), 1956; Ph.D., Brown University, 1959

Iseman, Sheila C. Instructor, part-time, Human Development. B.A., Brooklyn College, 1967; M.A., Oklahoma State University, 1970; Ph.D., University of Maryland, 1982.

Iso-Ahola, Seppo E. Professor, Kinesiology. B.S., University of Jyvaskyla (Finland), 1971, M.S., University of Illinois, 1972; M.S., University of Jyvaskyla (Finland), 1973; Ph.D., University of Illinois, 1976.

Jackson, Diana Ryder Assistant Dean, College of Behavioral and Social Sciences. B.A., Michigan State University, 1975; M.L.I.R., 1977; M.A., University of Maryland, 1981; Ph.D., 1987.

Jackson, Fatimah Linda Collier Affiliate Assistant Professor, Zoology; Assistant Professor, Anthropology. B.A., Cornell University, 1972; M.A., 1978; Ph.D., 1981.

Jackson, John W. Professor Emeritus, Mechanical Engineering. B.S., University of Cincinnati, 1934; M.Eng., 1937; M.S., California Institute of Technology, 1940.

Jackson, Paul D. Lecturer, Dance. B.F.A., University of Utah, 1976; M.A., The Ohio State University, 1980.

Jackson, Reginald B. Lecturer Part-time, Music. B.M., North Texas State University, 1968; M.M.ED., 1973.

Jackson, Robert T. Associate Professor, Human Nutrition and Food Systems. B.A., Cornell University, 1970; M.Sc., University of Dar-es-salaam, 1977; Ph.D., Cornell University, 1981.

Jacobs, Wendy Lecturer, Art. B.F.A., Edinboro State College, 1980; M.F.A., Cranbrook Academy of Art, 1984.

Jacobson, Theodore A. Assistant Professor, Physics. B.A., Reed College, 1977; Ph.D., University of Texas (Austin), 1983.

Jacoby, Barbara Affiliate Lecturer, French and Italian; Affiliate Assistant Professor, Counseling and Personnel Services. B.A., University of Maryland, 1971; M.A., 1972; Ph.D., 1978.

Ja'Ja', Joseph Professor, Electrical Engineering; Associate Director of Research, Institute for Systems Research; Professor, Institute for Advanced Computer Studies. B.S., American University (Beirut), 1974; M.S., Harvard University, 1976; Ph.D., 1977.

James, Bruce R. Associate Professor, Agronomy. B.A., Williams College, 1973; M.S., University of Vermont, 1979; Ph.D., 1981.

Jang, Hwee-Yong Jonathon Assistant Professor, College of Business and Management. B.A., Seoul National University, 1976; M.A., University of Minnesota, 1983; Ph.D., Purdue University, 1987.

Jantz, Richard K. Professor, Curriculum and Instruction. B.S., Indiana University, 1968; M.S., 1970; Ed.D., Ball State University, 1972.

Jaquith, Richard H. Professor Emeritus, Chemistry and Biochemistry; Assistant Vice President, Academic Affairs. B.S., University of Massachusetts, 1940; M.S., 1942; Ph.D., Michigan State University, 1955.

Jarvis, Bruce B. Professor & Associate Chairman, Chemistry and Biochemistry. B.S., Ohio Wesleyan University, 1963; Ph.D., University of Colorado, 1966.

Jashemski, Wilhelmina F. Professor Emerita, History. B.A., York College, 1931; M.A., University of Nebraska, 1933; Ph.D., University of Chicago, 1942.

Jawahery, Abolhassin Associate Professor, Physics. B.S., Tehran University, 1976; M.S., Tufts University, 1977; Ph.D., 1981.

Jellema, Roderick H. Professor Emeritus, English. B.A., Calvin College, 1951; Ph.D., University of Edinburgh (Scotland), 1962.

Jepsen, David Professor, Counseling and Personnel Services. B.A., University of Northern Iowa, 1960; M.S., University of Wisconsin (Madison), 1963; Ph.D., 1970.

Johnson, Arthur T. Professor, Agricultural Engineering B.S.A.E., Cornell University, 1964; M.S., 1967; Ph.D., 1969.

Johnson, Charles E. Associate Professor, Measurement, Statistics, and Evaluation. B.A., University of Minnesota, 1957; Ph.D., 1964.

Johnson, Dale M. Faculty Extension Assistant, Agricultural and Resource Economics. B.S., Utah State, 1984; M.S., Cornell University, 1986.

Johnson, Isiah Associate Staff, Accompanist, Dance. B.A., University of Maryland, 1976.

Johnson, Janet W. Assistant Professor, Psychology A.B., George Washington University, 1951; A.M., 1956; Ph.D., 1962.

Johnson, Martin L. Professor, Curriculum and Instruction. B.S., Morris College, 1961; M.Ed., University of Georgia, 1968; Ed.D., 1971.

Johnson, Peggy Assistant Professor, Civil Engineering. B.S., University of New Mexico, 1981; M.S., University of Maryland, 1989; Ph.D., 1990.

Johnson, Raymond L. Professor and Chair, Mathematics. B.A., University of Texas, 1963; Ph.D., Rice University, 1969.

Jolson, Marvin A. Professor, College of Business and Management. B.E.E., George Washington University, 1949; M.B.A., University of Chicago, 1965; D.B.A., University of Maryland, 1969.

Jones, Everett Associate Professor, Aerospace Engineering. B.A.E., Rensselaer Polytechnic Institute, 1956; M.A.E., 1960; Ph.D., Stanford University, 1968.

Jones, George F. Professor Emeritus, Germanic and Slavic Languages and Literatures. B.A., Emory University, 1938; M.A., Oxford University, 1943; Ph.D., Columbia University, 1951.

Jones, Jack C. Professor Emeritus, Entomology. B.S., Auburn University, 1942; M.S., 1947; Ph.D., Iowa State University, 1950.

Joseph, John E. Associate Professor, French and Italian. B.A., University of Michigan, 1977; M.A., 1978; Ph.D., 1981.

Joseph, Sam W. Professor, Microbiology. B.S., University of Florida, 1956; M.S., St. John's University, New York, 1964; Ph.D., 1970.

Julin, Douglas A. Assistant Professor, Chemistry and Biochemistry. B.A., Haverford College, 1978; Ph.D., University of California (Berkeley), 1984.

Jump, Lance B. Lecturer, Part-time, Electrical Engineering. B.S., University of Maryland, 1979; M.S., 1984; Ph.D., 1992.

Just, Richard E. Professor and Chair, Agricultural and Resource Economics. B.S., Oklahoma State University, 1969; M.A., University of California (Berkeley), 1971; Ph.D., 1972.

Kacser, Claude Associate Professor, Physics. B.A., Oxford University, 1955; M.A., 1959; Ph.D., 1959.

Kagan, Abram Professor, Mathematics. M.A., University of Tashkent, 1958, Ph.D., University of Leningrad, 1963; D.Sc., 1967.

Kahn, Joan R. Assistant Professor, Sociology. B.A., Stanford University, 1978; M.A., University of Michigan, 1982; Ph.D., 1985.

Kaku, Bharat K. Assistant Professor, College of Business and Management. B.E., Bhopal University, 1972; M.B.A., University of Delhi, 1975; M.S., Carnegie-Mellon University, 1982; Ph.D., 1985.

Kaljee, Linda M. Faculty Research Assistant, Anthropology B.A., University of Maryland, 1978, M.A.A., 1988.

Kameras, Beth A. Instructor, Maryland English Institute. B.S., Coe College, 1975; M.A.T., Georgetown University, 1981.

Kaminski, Bartlomiej K. Associate Professor, Government and Politics. M.S., University of Warsaw, 1967; Ph.D., 1972.

Kammeyer, Kenneth C. W. Professor, Sociology B.A., University of Northern Iowa, 1953; M.A., State University of Iowa, 1958; Ph.D., 1960.

Kanal, Laveen N. Professor, Computer Science. B.S., University of Washington, 1951; M.S., 1953; Ph.D., University of Pennsylvania, 1960.

Kandelin, Nils A. Assistant Professor, College of Business and Management. B.S., University of California, 1979; M.B.A., University of Southern California, 1984; Ph.D., 1990.

Kanges, Patrick C. Associate Professor, Agricultural Engineering; Coordinator, Natural Resources Management Program; Associate Professor, Agricultural and Extension Education. B.S., Kent State University, 1974; M.S., University of Oklahoma, 1978; Ph.D., University of Florida, 1983.

Kantzes, James G. Professor, Botany. B.S., University of Maryland, 1951; M.S., 1954; Ph.D., 1957.

Kartam, Nabil A. Assistant Professor, Civil Engineering. B.S., Kuwait University, 1983; M.S., University of Michigan, 1985; M.S., Stanford University, 1988; Ph.D., 1989.

Kauffman, Linda S. Professor, English. B.A., University of California (Santa Barbara), 1971; Ph.D., 1978.

Kaufman, Stuart B. Professor, History. B.A., University of Florida, 1962; M.A., 1964; Ph.D., Emory University, 1970.

Kearney, Michael S. Associate Professor, Geography. B.S., University of Illinois, 1973; M.A., Western Illinois University, 1976; Ph.D., University of Western Ontario, 1981.

Kedem, Benjamin Professor, Mathematics; Professor, Institute for Systems Research. B.S., Roosevelt University, 1968; M.S., Carnegie-Mellon University, 1970; Ph.D., 1973.

Keenan, Kevin L. Assistant Professor, College of Journalism. B.A., University of Illinois, 1977; M.S., 1979; Ph.D., University of Georgia, 1990.

Keeney, Mark Professor Emeritus, Chemistry and Biochemistry; , Animal Sciences. B.S., Pennsylvania State University, 1942; M.S., Ohio State University, 1948; Ph.D., Pennsylvania State University, 1950.

Kehoe, Patrice Associate Professor, Art. B.F.A., University of North Carolina, 1973; M.F.A., Washington University (St. Louis), 1977.

Kelejian, Harry H. Professor, Economics. B.A., Hofstra College, 1962; M.A., University of Wisconsin, 1964; Ph.D., 1968.

Kelleher, Catherine M. Professor, School of Public Affairs; Affiliate Professor, Government and Politics. A.B., Mount Holyoke College, 1960; Ph.D., Massachusetts Institute of Technology, 1967; D.Litt., Mount Holyoke College, 1980.

Kelley, David L. Professor, Kinesiology A.B., San Diego State College, 1957; M.S., University of Southern California, 1958, Ph.D., 1962

Kellogg, R. Bruce Research Professor, Mathematics and Institute for Physical Science and Technology. B.S., Massachusetts Institute of Technology, 1952; Ph.D., University of Chicago, 1959.

Kelly, Brian P. Assistant Professor, School of Architecture. B.Arch., University of Notre Dame, 1981; M.Arch., Cornell University, 1987.

Kelly, James J. Associate Professor, Physics. B.S., California Institute of Technology, 1977; Ph.D., Massachusetts Institute of Technology, 1981.

Kelly, R. Gordon Associate Professor and Chairman, American Studies. B.A., Depauw University, 1961; M.A., Claremont Graduate School, 1962; Ph.D., University of Iowa, 1970.

Kenny, William J. Lecturer, Part-time, College of Business and Management. B.BA., University of Notre Dame, 1971; M.S., DePaul University, 1976.

Kent, Bretton W. Instructor, Zoology B.S., Oregon State University, 1976; M.S., 1976, Ph.D., University of Maryland, 1981

Kent, George O. Professor Emeritus, History B.S., Columbia University, 1948; M.A., 1949; Ph.D., Oxford University, 1958.

Kenworthy, William J. Professor, Agronomy B.S., Purdue University, 1970; M.S., North Carolina State University, 1972; Ph.D., 1976.

Kerkham, H. Eleanor Associate Professor, Hebrew and East Asian. B.A., Pomona College, 1961; M.A., Stanford University, 1963; Ph.D., Indiana University, 1974

Kerr, Frank J. Professor Emeritus, Astronomy B.Sc., University of Melbourne (Australia), 1938; M.Sc., 1939, M.A., Harvard University, 1951, D.Sc., University of Melbourne (Australia), 1962.

Khan, Hasna J. Assistant Professor, Mechanical Engineering B.S., Bangladesh University of Engineering, 1980; M.S., University of Washington, 1982; Ph.D., 1986.

Khanna, Raj K. Professor, Chemistry and Biochemistry M.Sc., University of Delhi, 1957; Ph.D., Indian Institute of Science (Bangalore), 1962

Khuller, Samir Assistant Professor, Computer Science. B.Tech., Indian Institute of Technology, 1986; M.S., Cornell University, 1989, Ph.D., 1990.

Kidd, Jerry S. Professor Emeritus, College of Library and Information Services. B.S., Illinois Wesleyan University, 1950; M.A., Northwestern University, 1954, Ph.D., 1956.

Kim, Seung-kyung Assistant Professor, Women's Studies Program. B.A., Yonsei University, 1977, M.A., City University of New York, 1987; Certificate of Women's Studies, 1990, Ph.D., 1990.

Kim, Young Suh Associate Professor, Physics. B.S., Carnegie Institute of Technology, 1958; Ph.D., Princeton University, 1961

King, Henry C. Professor, Mathematics. A.B., Brown University, 1969; M.A., University of California (Berkeley), 1973, Ph.D., 1974

King, Katherine R. Assistant Professor, Women's Studies Program. B.A., University of California (Santa Cruz), 1975; Ph.D., 1987.

King, Raymond L. Professor Emeritus, Animal Sciences A.B. University of California (Davis), 1955; Ph.D., 1958

Kinginger, Celeste Assistant Professor, French and Italian. B.A. Antioch College, 1980, M.A., George Washington University, 1983, Ph.D., University of Illinois, 1990

Kinlein, Bernard A. Lecturer, Part-time, College of Business and Management. B.S., Johns Hopkins, 1958, M.B.A., Loyola College, 1976.

Kirk, James A. Professor, Mechanical Engineering B.S., Ohio State University, 1967, M.S., Massachusetts Institute of Technology, 1969, Ph.D., 1972.

Kirkley, Donald H., Jr. Associate Professor, Radio, Television and Film. B.A., University of Maryland, 1960; M.A., 1962, Ph.D., Ohio University, 1967.

Kirkpatrick, Theodore R. Professor, Institute for Physical Science and Technology; Professor, Physics. B.S., University of California (Los Angeles), 1977, Ph.D., Rockefeller University, 1981

Kirshner, Joseph M. Lecturer, Part-time, Physics. B.S., University of Delaware, 1947; M.S., University of Maryland, 1952.

Kirwan, William E. President; Professor, Mathematics. A.B., University of Kentucky, 1960; M.S., Rutgers The State University, 1962; Ph.D., 1964.

Klank, Richard Associate Professor, Art. B.Arch., Catholic University of America, 1962; M.F.A., 1964.

Klavon, Albert J. Assistant Dean, Colleges of Agriculture and Life Sciences. B.S., University of Maryland, 1968; M.S., 1973; Ph.D., 1975.

Kleiman, Devra Gail Adjunct Professor, Zoology. B.S., University of Chicago, 1964. Ph.D., University of London, 1969.

Klein, Elisa L. Associate Professor, Curriculum and Instruction. B.A., Kalamazoo College, 1975; M.S., Pennsylvania State University, 1977; Ph.D., 1980.

Klein, Katherine J. Associate Professor, Psychology. B.A., Yale University, 1978; Ph.D., University of Texas (Austin), 1984.

Kleine, Don W. Associate Professor, English. B.A., University of Chicago, 1950; M.A., 1953; Ph.D., University of Michigan, 1961.

Kleppner, Adam Professor, Mathematics. B.S., Yale University, 1953; M.A., University of Michigan, 1954; Ph.D., Harvard University, 1960.

Klumpp, James F. Associate Professor, Speech Communication. B.A., University of Kansas, 1968; M.A., University of Minnesota, 1971; Ph.D., 1973.

Koh, Severino L. Professor and Associate Dean, Mechanical Engineering (UMBC). B.S., New York University, 1950; B.S., National University of the Philippines (Manila), 1952; M.S., Pennsylvania State University, 1957; Ph.D., Purdue University, 1962.

Kohl, Frances L. Associate Professor, Special Education. B.S., University of Wisconsin, 1973; M.Ed., Temple University, 1975; Ph.D., University of Illinois, 1979.

Kolnes, Penelope M. Instructor, Botany. B.A., George Washington University, 1963; M.S., University of Maryland, 1980.

Kolker, Robert Professor, English; Professor, Comparative Literature. B.A.,, Queens College (CUNY), 1962; M.A.,, Syracuse University, 1964; Ph.D.,, Columbia University, 1969.

Kolker, Robert P. Professor and Chair, Radio, Television and Film. B.A., City University of New York (Queens College), 1962; M.A., Syracuse University, 1965; Ph.D., Columbia University, 1969.

Kolodny, Richard Professor, College of Business and Management. B.S.B.A., Northwestern University, 1965; M.B.A., New York University, 1967; Ph.D., 1972.

Kolson, Kenneth Lecturer, Part-time, University Honors Program. B.A., Allegheny College, 1967; M.A., University of Kentucky, 1969; Ph.D., 1972.

Komives, Susan R. Assistant Professor, Counseling and Personnel Services. B.S., Florida State University, 1968; M.S., 1969; Ph.D., University of Tennessee, 1973.

Korenman, Victor Professor, Physics; Assistant Vice President (Acting), Academic Affairs. B.A., Princeton University, 1958; M.A., Harvard University, 1959; Ph.D., 1965.

Korkegi, Robert H. Visiting Professor, Part-time, Aerospace Engineering. B.S., Lehigh University, 1949; M.S., California Institute of Technology, 1950; Ph.D., 1954.

Kornblatt, Joyce R. Professor, English. B.A., Carnegie-Mellon University, 1966; M.A., Case-Western Reserve University, 1968.

Koscielny, Anne Professor, Music. B.Mus., Eastman School of Music, 1958; M.Mus., Manhattan School of Music, 1964.

Kotz, Samuel Professor, College of Business and Management. M.S., Hebrew University, Jerusalem, 1956; Ph.D., Cornell University, 1960.

Kovach, Kenneth A. Lecturer, part-time, College of Business and Management. B.B.A., University of Ohio, 1968; M.B.A., 1971; D.B.A., University of Maryland, 1974.

Krapfel, Robert E. Associate Professor, College of Business and Management. B.A., University of Connecticut, 1970; M.B.A., 1975; Ph.D., Michigan State University, 1979.

Krayterman, Boris L. Associate Professor, Part-time, Mechanical Engineering. M.S., Polytechnical Institute (Saratov, USSR), 1958; Ph.D., 1964.

Kreiser, Jeanette S. Affiliate Assistant Professor, Counseling and Personnel Services; Assistant Dean, College of Education. B.A., University of Chicago, 1965; M.A.T., 1969; Ed. D., University of Rochester, 1980.

Krewatch, Albert V. Professor Emeritus, Agricultural Engineering. B.S., University of Delaware, 1925; M.S., 1929; E.E., 1933.

Kriebs, David K. Lecturer, Theatre. B.S., University of Tennessee, 1972; M.A., 1973; M.F.A., Yale School of Drama, 1982.

Krisher, Lawrence C. Professor, Part-time, Institute for Physical Science and Technology. A.B., Syracuse University, 1955; A.M., Harvard University, 1957; Ph.D., 1959.

Krishnaprasad, P.S. Professor, Electrical Engineering; Professor, Institute for Systems Research. B.Tech., Indian Institute of Technology, 1972; M.S., Syracuse University, 1973; Ph.D., Harvard University, 1977.

Krishnaswami, Uma Faculty Research Assistant, Special Education. B.A., University of Delhi (India), 1975; M.A., 1977; M.A., University of Maryland, 1981.

Krogstad, Eirik J. Assistant Professor, Geology. B.S., Western Washington University, 1981; Ph.D., State University of New York (Stony Brook), 1988.

Kruglanski, Arie W. Professor, Psychology. B.A., University of Toronto (Canada), 1966; M.A., University of California, 1967; Ph.D., 1968.

Krusberg, Lorin R. Professor, Botany. B.S., University of Delaware, 1954; M.S., North Carolina State University, 1956; Ph.D., 1959.

Krushenick, Nicholas Associate Professor, Art. B.A., Art Students' League, 1950; M.A., Hans Hofmann School, 1951.

Kruskal, Clyde Associate Professor, Computer Science. B.A., Brandeis University, 1976; M.S., Courant Institute of Mathematical Sciences (NYU), 1978; Ph.D., 1981.

Kudla, Stephen S. Professor, Mathematics. B.A., Harvard University, 1971; M.A., State University of New York (StonyBrook), 1972; Ph.D., 1975.

Kueker, David W. Professor, Mathematics. A.B., University of California (Los Angeles), 1964; M.A., 1966; Ph.D., 1967.

Kuenzel, Wayne J. Professor, Poultry Science. B.S., Bucknell University, 1964; M.S., 1966; Ph.D., University of Georgia, 1969.

Kundu, Mukul R. Professor, Astronomy. B.Sc., Calcutta University (India), 1949, M.Sc., 1951, D.Sc., University of Paris (France), 1957

Kung, Shain-dow Professor, Botany. B.S., University of Chung-Hsing (China), 1958, M.S., University of Guelph (Canada), 1965, Ph.D., University of Toronto, 1968.

Kuo, Jason C. Assistant Professor, Art History. B.A., National Taiwan University, 1971; M.A., 1973; Ph.D., University of Michigan, 1980.

Laidlaw, Charles D. Lecturer, Part-time, Urban Studies. B.A., Colgate University, 1952; M.A., Yale University, 1953; Ph.D., University of Pennsylvania, 1968.

Laiman, David Assistant Professor, Government and Politics. B.A., University of Kansas, 1974; M.A., 1978; Ph.D., University of Rochester, 1985

Lamone, Rudolph P. Professor and Dean, College of Business and Management. B.S., University of North Carolina, 1960; Ph.D., 1966.

Lamp, William Associate Professor, Entomology. B.S., University of Nebraska, 1972; M.S., Ohio State University, 1976; Ph.D., University of Nebraska, 1980.

Lampe, John R. Professor, History. B.A., Harvard University, 1957; M.A., University of Minnesota, 1964; Ph.D., University of Wisconsin, 1971.

Landry, L. Bartholomew Associate Professor, Sociology. B.A., Saint Mary's Seminary, 1961; B.A., Xavier University, 1966; Ph.D., Columbia University, 1971.

Lanier, Lois Kleinhenn Instructor, Maryland English Institute. B.A., Anderson College, 1971; M.A., Columbia University, 1977.

Lanning, Eldon W. Assistant Professor, Government and Politics. B.S., Northwestern University, 1960; Ph.D., University of Virginia, 1965.

Lanser, Susan S. Professor, English; Director, Comparative Literature. B.A., Marquette University, 1965; M.A., University of Wisconsin (Madison), 1973; Ph.D., 1979.

Lapinski, Tadeusz Professor, Art. M.F.A., Academy of Fine Arts, Warsaw (Poland), 1955.

Larkin, Willard D. Associate Professor, Psychology. B.S., University of Michigan, 1959; M.A., University of Pennsylvania, 1963; Ph.D., University of Illinois (Urbana), 1967.

Larsen, Ronald Affiliate Associate Professor, Computer Science; Associate Director, Information Technology Division, UMCP Libraries. B.S., Purdue University, 1968; M.S., Catholic University, 1971; Ph.D., University of Maryland, 1981.

Lashley, Marilyn Assistant Professor, Afro-American Studies. B.A., Millikin University, 1969; M.A., University of Chicago, 1971; M.A., 1986; Ph.D., 1986.

Laskowski, Michael Chris Assistant Professor, Mathematics. B.A., University of Wisconsin (Madison), 1978; Ph.D., University of California (Berkeley), 1987.

Lavine, Roberta Z. Assistant Professor, Spanish and Portuguese. B.A., Queens College (CUNY), 1974; M.A., Catholic University of America, 1976; Ph.D., 1983.

Lawrence, Jane Fiori Director, University Honors Program; Affiliate Assistant Professor, Education Policy, Planning, and Administration. B.A., California Polytechnic State University, 1972; M.A., San Diego State University, 1978; Ph.D., University of Maryland, 1990.

Lawrence, Richard E. Associate Professor, Counseling and Personnel Services. B.S., Michigan State University, 1955; M.A., 1957; Ph.D., 1965.

Lawrence, Samuel A. Assistant Vice President, Administrative Affairs. B.A., Harvard College, 1950; M.P.A., American University, 1958; Ph.D., 1965.

Lawson, Lewis A. Professor, English. B.S., East Tennessee State University, 1957; M.A., 1959; Ph.D., University of Wisconsin, 1964

Lawson, Wesley G. Assistant Professor, Electrical Engineering; Assistant Professor, Laboratory for Plasma Research. B.S.E.E., University of Maryland, 1980; M.S., 1981; Ph.D., 1985.

Lay, David C. Professor, Mathematics. B.A., Aurora College, 1962; M.A., University of California (Los Angeles), 1965; Ph.D., 1966.

Layman, John W. Professor, Curriculum and Instruction; Professor, Physics. A.B., Park College, 1955; M.S Ed., Temple University, 1961; Ed.D., Oklahoma State University, 1970.

Leak, Lawrence E. Visiting Assistant Professor, Education Policy, Planning, and Administration; Director, Leadership in Educational Administration Development (LEAD). B.A., St. Mary's College, 1976; M.Ed., University of Maryland, 1981; Ph.D., 1988.

Leatherman, Stephen P. Professor, Geography. B.S., North Carolina State University, 1970; Ph.D., University of Virginia, 1975.

Leathers, Howard D. Associate Professor, Agricultural and Resource Economics. A.B., Princeton University, 1974; M.S., University of Minnesota, 1978; Ph.D., University of Wisconsin, 1986.

Lebeaux, David Assistant Professor, Linguistics. B.A., Oberlin College, 1974; M.A., Harvard University, 1981; Ph.D., University of Massachusetts, 1988.

LeClere, Marc J. Assistant Professor, College of Business and Management. B.A., University of Massachusetts, 1979; M.S., Pennsylvania State University, 1985; Ph.D., 1989.

Lee, Chi H. Professor, Electrical Engineering. B.S., National Taiwan University (Taipei), 1959; M.S., Harvard University, 1962; Ph.D., 1967.

Lee, Edward H. Adjunct Professor, Agronomy. B.S., National Taiwan University, 1959; M.A., University of Kansas, 1966; Ph.D., University of Oklahoma, 1969.

Lee, Hugh M. Associate Professor, Classics. B.A., St. Mary's of California, 1966; M.A., Stanford University, 1971; Ph.D., 1972.

Lee, Richard Instructor, part-time, Materials and Nuclear Engineering. B.S., University of Maryland, 1977; M.S., 1980; Ph.D., 1982.

Lee, Sung W. Professor and Acting Chair, Aerospace Engineering. B.S., Seoul National University, 1966; M.S., Massachusetts Institute of Technology, 1974; Ph.D., 1978.

Lee, Tzong-Yow Assistant Professor, Mathematics. B.S., National Taiwan Institute, 1980; M.S., Courant Institute, New York University, 1984; Ph.D., 1986.

Lee, Yee-Chun Professor, Physics; Professor, Institute for Advanced Computer Studies; Professor, Laboratory for Plasma Research.

Leete, Burt A. Professor and Associate Dean, College of Business and Management. B.S., Juniata College, 1962; M.B.A., University of Maryland, 1964; J.D., American University, 1969.

Leffel, Emory C. Professor Emeritus, Animal Sciences. B.S., University of Maryland, 1943; M.S., 1947; Ph.D., 1953.

Lefkoff-Haglus, Roxanne Assistant Professor, College of Business and Management. B.S., West Virginia University, 1980; M.B.A., University of Houston, 1982; Ph.D., University of North Carolina, 1990.

Lehner, Guydo R. Professor Emeritus, Mathematics. B.S., Loyola University, 1951; M.S., University of Wisconsin, 1953; Ph.D., 1958.

Leibowitz, Zandra B. Adjunct Associate Professor, Part-time, Counseling and Personnel Services. B.A., University of Maryland, 1968; M.A., 1972; Ph.D., 1974

Leinwand, Theodore B. Associate Professor, English. B.A., Hamilton College, 1973; M.A., Johns Hopkins University, 1978; Ph.D., 1980.

Leishman, John G. Assistant Professor, Aerospace Engineering. B.S., University of Glasgow, 1980; Ph.D., 1984.

Lejins, Peter P. Professor Emeritus, Institute of Criminal Justice and Criminology; Professor Emeritus, Sociology. M.Phil., University of Latvia, 1930; Mag. Iur., 1933, Ph.D., University of Chicago, 1938.

Lekic, Marla D. Assistant Professor, Russian Language and Literature. Diplom., Moscow State Pedagogical Institute/Vil, 1971; Ph.D., University of Pennsylvania, 1983.

Lekoudis, Spiro Lecturer, Part-time, Aerospace Engineering. B.S., National Technical University (Athens), 1972; M.S., Virginia Poly. Institute & State University, 1973; Ph.D., 1977.

Lengermann, Joseph J. Associate Professor, Sociology. B.A., University of Notre Dame, 1958; S.T.B., Gregorian University, 1960; S.T.L., 1962; M.A., University of Notre Dame, 1964; Ph.D., Cornell University, 1969.

Leonard, Mary M. Associate Professor, Counseling and Personnel Services. B.S., Boston College, 1968; M.A., University of Minnesota, 1971; Ph.D., 1974.

Leonardi, Susan Associate Professor, English. B.A., Immaculata College, 1968; M.A., University of California (Davis), 1982; Ph.D., 1986.

Leone, Mark P. Professor, Anthropology. B.A., Tufts University, 1963; M.A., University of Arizona, 1965; Ph.D., 1968.

Leone, Peter E. Associate Professor, Special Education. B.A., University of Iowa, 1972; M.A., 1974; Ph.D., University of Washington, 1981.

Lerch, Virginia D. Lecturer, Institute of Applied Agriculture. B.S., University of Minnesota, 1973; M.S., 1979; Ph.D., University of Maryland, 1992.

Lesher, James H. Professor, Philosophy. B.A., University of Virginia, 1962; Ph.D., University of Rochester, 1966.

Leslie, Leigh A. Associate Professor, Family and Community Development. B.S., Texas Tech University, 1975; M.S., 1977; Ph.D., Pennsylvania State University, 1982.

Levin, Melvin R. Professor, Urban Studies. A.M., University of Chicago, 1949; Ph.D., 1956.

Levin, Phillis Assistant Professor, English. B.A., Sarah Lawrence College, 1976; M.A., Johns Hopkins University, 1977.

Levine, Marvin J. Professor, College of Business and Management. B.A., University of Wisconsin, 1952; J.D., 1954; M.A., 1959; Ph.D., 1964.

Levine, Robert Associate Professor, English. B.A., Columbia University, 1975; M.A., Stanford University, 1977; Ph.D., 1981.

Levine, William S. Professor, Electrical Engineering. Professor, Institute for Systems Research. B.S., Massachusetts Institute of Technology, 1962, M.S., 1965; Ph.D., 1969.

Levinson, Jerrold Professor, Philosophy. B.S., Massachusetts Institute of Technology, 1969; Ph.D., University of Michigan, 1974

Levinson, John Z. Professor Emeritus, Psychology. B.A., University of Toronto, 1939; M.A., 1940; Ph.D., 1948

Levitan, Herbert Professor, Zoology. B.E.E., Cornell University, 1962; Ph.D., 1965.

Leviton, Daniel Professor, Health Education. B.S., George Washington University, 1953; M.A., Springfield College, 1956; Ph.D., University of Maryland, 1967.

Levy, Frank S. Professor, School of Public Affairs. B.S., Massachusetts Institute of Technology, 1963; M.A., Yale University, 1965; Ph.D., 1969

Levy, Mark R. Professor and Associate Dean, College of Journalism. B.A., Johns Hopkins University, 1964; M.A., Rutgers University, 1965; M. Phil., Columbia University, 1975; Ph.D., 1977.

Levy, Nili Lecturer, Hebrew and East Asian. B.A., Hebrew University of Jerusalem, 1966, M.A., Baltimore Hebrew College, 1985.

Lewis, Mark Joel Assistant Professor, Aerospace Engineering. B.S., Massachusetts Institute of Technology, 1984, M.S., 1985, Ph.D., 1988.

Lewis, Roger K. Professor, School of Architecture. B. Arch., Massachusetts Institute of Technology, 1964, M. Arch., 1967.

Li, Jian-Shu Assistant Professor, Mathematics. B.S., Zhejiang University, 1981; M.A., Cornell University, 1983; Ph.D., Yale University, 1987.

Llakos, Nina Turitz Instructor, Maryland English Institute. B.A., University of Rochester, 1971; M.S., Georgetown University, 1978.

Liberman, Esther Lecturer, Hebrew and East Asian. M.A., University of Chicago, 1949

Lichtenberg, Erik Associate Professor, Agricultural and Resource Economics. B.A., University of Chicago, 1975; Ph.D., University of California (Berkeley), 1985.

Lichtenberg, Judith Associate Professor, Philosophy. Senior Research Scholar, Institute for Philosophy and Public Policy. B.A., University of Wisconsin (Madison), 1968; M.A., 1971; Ph.D., City University of New York, 1978.

Lieber, Joan A. Associate Professor, Special Education. B.A., Douglass College (Rutgers Univ.), 1969; M.S., University of Pennsylvania, 1970; Ph.D., University of California (Santa Barbara), 1986.

Liesener, James W. Professor, College of Library and Information Services. B.A., Wartburg College, 1955; M.A., University of Northern Iowa, 1960, A.M.L.S., University of Michigan, 1962; Ph.D., 1967.

Lifton, Mitchell Professor, Comparative Literature. B.A., San Francisco State University, 1958.

Lightfoot, David W. Professor and Chair, Linguistics Department; Affiliate Professor, Hearing and Speech Science, Psychology. B.A., King's College (London), 1966; M.A., University of Michigan, 1969, Ph.D., 1971

Ligomenides, Panos A. Professor, Electrical Engineering. B.S., University of Athens, 1951, M.S., 1952; M.S.E.E., Stanford University, 1956; Ph.D., 1958

Lin, Hung Chang Professor Emeritus, Electrical Engineering. B.S., Chiao-Tung University, 1941, M.S.E., University of Michigan, 1948; Ph.D., Polytechnic Institute of Brooklyn, 1956.

Lindemann, Marilee Professor, English. B.A., Indiana University, 1981, M.A., Rutgers University, 1983, Ph.D., 1991

Linder, Harris J. Associate Professor, Zoology. B.S., Long Island University, 1951, M.S., Cornell University, 1955; Ph.D., 1958

Lindsay, Rao H. Associate Professor, Education Policy, Planning, and Administration. B.A., Brigham Young University, 1954; M.A., 1958; M.A., University of Michigan, 1963, Ph.D., 1964

Linduska, James J. Associate Professor, Entomology. B.S., University of Maryland, 1965, M.S., 1968, Ph.D., 1973

Link, Conrad B. Professor Emeritus, Horticulture. B.S., Ohio State University, 1933; M.S., 1934; Ph.D., 1940.

Linkow, Irving Associate Professor Emeritus, Speech Communication. B.A., University of Denver, 1937; M.A., 1938.

Lipowitz, Harriet R. Instructor, Maryland English Institute. B.A., Fairleigh Dickinson University, 1969; M.A.T., School for International Training, 1976.

Lipsman, Ronald L. Professor, Mathematics. B.S., City University of New York (City College), 1964; Ph.D., Massachusetts Institute of Technology, 1967.

Lissitz, Robert W. Professor and Chairman, Measurement, Statistics, and Evaluation; Affiliate Professor, Psychology. B.S., Northwestern University, 1963; Ph.D., Syracuse University, 1969.

Little, Barbara J. Lecturer, Anthropology. B.A., Pennsylvania State University, 1980; M.A., State University of New York (Buffalo), 1984; Ph.D., 1987.

Little, Keren Instructor/Undergraduate Advisor, Spanish and Portuguese. B.A., University of Maryland, 1973; M.A., 1975.

Liu, Chuen Sheng Professor, Physics; Professor, Laboratory for Plasma Research. B.S., Tunghai University (Taiwan), 1960; M.A., University of California (Berkeley), 1964; Ph.D., 1968.

Liu, K.J. Ray Assistant Professor, Electrical Engineering; Assistant Professor, Institute for Systems Research. B.S., National Taiwan University, 1983; M.S.E., University of Michigan (Ann Arbor), 1987; Ph.D., University of California (Los Angeles), 1990.

Lloyd, Esabel K. Assistant Professor, Chemical and Nuclear Engineering. B.S., Pennsylvania State University, 1975; Ph.D., Massachusetts Institute of Technology, 1980.

Lobb, Christopher Professor, Physics. B.A., Rutgers, 1974; S.M., Harvard University, 1976; Ph.D., 1980.

Lockard, J. David Professor, Botany; Professor, Curriculum and Instruction. B.S., Pennsylvania State University, 1951; M.Ed., 1955; Ph.D., 1962.

Loeb, Martin P. Associate Professor, College of Business and Management. B.S., State University of New York (Stony Brook), 1970; M.S., Northwestern University, 1972; Ph.D., 1975.

Loeb, Stephen E. Professor, College of Business and Management. B.S., University of Pennsylvania, 1961; M.B.A., University of Wisconsin, 1963; Ph.D., 1970.

Loerke, William Visiting Professor, Part-time, School of Architecture. A.B., Oberlin College, 1942; M.F.A., Princeton University, 1948; Ph.D., 1957.

Loftin, Colin Professor, Institute of Criminal Justice and Criminology. B.A., University of North Carolina (Chapel Hill), 1964; M.A., 1966; Ph.D., 1971.

Logan, Shirley Assistant Professor, English. B.A., Johnson S. Smith University, 1964; M.A., University of North Carolina (Chapel Hill), 1966; Ph.D., University of Maryland, 1988.

Lolzeaux, Elizabeth B. Associate Professor, English; Director, Undergraduate Studies. B.A., Mount Holyoke College, 1972; M.A., University of Michigan, 1974; Ph.D., 1980.

Lombardi, Linda Assistant Professor, Linguistics. B.A., Brandeis University, 1984; Ph.D., University of Massachusetts, Amherst, 1991.

Lopez, Ramon S. Professor, Agricultural and Resource Economics. B.S., University of Chile, 1969; M.S., University of British Columbia, 1977; Ph.D., 1980.

Lopez-Escobar, Edgar G. Professor, Mathematics. B.A., Cambridge University, 1958; M.A., University of California (Berkeley), 1961; Ph.D., 1965.

Lorion, Raymond P. Professor, Psychology. B.S., Tufts University, 1968, Ph.D., University of Rochester, 1972

Loss, John C. Professor, School of Architecture. B. Arch., University of Michigan, 1954; M. Arch., 1960.

Lounsbury, Myron O. Associate Professor and Director of Graduate Studies, American Studies. B.A., Duke University, 1961, M.A., University of Pennsylvania, 1962; Ph.D., 1966.

Lozner, Ruth J. Associate Professor, Art. B.F.A., Carnegie-Mellon University, 1972; M.F.A., American University, 1979.

Lu, Paul C.K. Professor, School of Architecture. B.S., Chung-Kung University (Taiwan), 1954; B.Arch., Kansas State University, 1958; M.Arch., 1962; M.L.A., Harvard Graduate School of Design, 1967.

Luban, David J. Professor, University of Maryland Law School; Research Scholar, Institute for Philosophy and Public Policy. B.A., University of Chicago, 1970; M.A., Yale University, 1973; M.Phil., 1973; Ph.D., 1974.

Lucas, Margaretha S. Affiliate Assistant Professor, Counseling and Personnel Services. B.S., Ohio State University, 1979; M.S., Iowa State University, 1983; Ph.D., 1985.

Luetkemeyer, Joseph F. Professor Emeritus, Industrial, Technological and Occupational Education. B.S., Stout State College, 1953; M.S., University of Wisconsin (Stout), 1954; Ed.D., University of Illinois (Urbana), 1961.

Luhr, James F. Adjunct Associate Professor, Geology. B.Sc., University of Illinois, Urbana, 1975; M.A., University of California, Berkeley, 1977; Ph.D., 1980.

Lyman, Frank T. Lecturer, Curriculum and Instruction; Coordinator, Southern Howard County Teacher Education Center. B.A., Haverford College, 1959; Ed.M., Harvard University, 1970; Ph.D., University of Maryland, 1978.

Lynn, Jeffrey W. Professor, Physics. B.S., Georgia Institute of Technology, 1969; M.S., 1970; Ph.D., 1974.

Lyon, Andrew B. Assistant Professor, Economics. A.B., Stanford University, 1980; Ph.D., Princeton University, 1986.

Ma, Michael C. Associate Professor, Entomology. B.S., University of Wisconsin (Madison), 1973; M.S., 1975; Ph.D., 1978.

Mabbs, Linda Professor, Music. B.Mus., Northwestern University, 1968; M.Mus., 1970.

MacArthur, Charles A. Research Associate, Special Education. B.A., Cornell University, 1969; M.Ed., American University, 1974; Ph.D., 1980.

MacBain, William Professor, French and Italian. M.A., Honors, Saint Andrews University (Scotland), 1952; Ph.D., 1955.

MacDonald, William M. Professor, Physics. B.A., University of Pittsburgh, 1950; Ph.D., Princeton University, 1955.

Mack, Maynard, Jr. Associate Professor, English. B.A., Yale University, 1964; Ph.D., 1969.

MacLeod, Anne S. Professor, College of Library and Information Services. B.A., University of Chicago, 1949; M.L.S., University of Maryland, 1966; Ph.D., 1973.

MacQuillan, Anthony M. Associate Professor, Microbiology. B.S.A., University of British Columbia, 1956; M.Sc., 1958; Ph.D., University of Wisconsin, 1962.

Macready, George B. Professor, Measurement, Statistics, and Evaluation. B.A., Willamette University, 1965; M.A., University of Oregon, 1967; Ph.D., University of Minnesota, 1972.

Madan, Dilip B. Assistant Professor, College of Business and Management. B.Comm., University of Bombay, 1967; Ph.D., University of Maryland, 1971; Ph.D., 1975.

Madden, Dorothy G. Professor Emerita, Dance. A.B., Middlebury College, 1934, M.A., Syracuse University, 1937; Ph.D., New York University, 1962.

Maddocks, John H. Associate Professor, Mathematics. B.Sc., University of Glasgow (Scotland), 1978; D.Phil., Balliol College, Oxford University, 1982

Magette, William L. Associate Professor, Agricultural Engineering. B.S., Virginia Polytechnic Institute & State University, 1974; M.E., 1975; Ph.D., 1982

Magoon, Thomas M. Professor Emeritus, Counseling and Personnel Services and Psychology, Director Emeritus, Counseling Center. B.A., Dartmouth College, 1947; M.A., University of Minnesota, 1951; Ph.D., 1954

Magrab, Edward B. Professor, Mechanical Engineering. B.M.E., City College of New York, 1960; M.A.E., New York University, 1961; Ph.D., The Catholic University of Maryland, 1966.

Main, Daphne Assistant Professor, College of Business and Management. B.S., University of Vermont, 1976; M.S., Western Michigan University, 1982; Ph.D., Ohio State University, 1990.

Majeska, George P. Associate Professor, History. B.A., City University of New York (Brooklyn College), 1961; M.A., Indiana University, 1961; Ph.D., 1968.

Majeskie, J. Lee Associate Professor, Animal Sciences. B.S., University of Wisconsin, 1964, M.S., 1966; Ph.D., Kansas State University, 1970.

Major, Leon Professor and Acting Chair, Music. B.A., University of Toronto, 1955.

Makowski, Armand M. Professor, Electrical Engineering; Professor, Institute for Systems Research. B.S., Universite Libre de Bruxelles (Belgium), 1975; M.S., University of California (Los Angeles), 1976; Ph.D., University of Kentucky, 1981.

Male, George A. Professor, Education Policy, Planning, and Administration; Director, Comparative Education Center. B.A., University of Michigan, 1948; M.A., 1949, Ph.D., 1952.

Maley, Donald Professor Emeritus, Industrial, Technological and Occupational Education. B.S., California State College (Pennsylvania), 1944; M.A., University of Maryland, 1947; Ph.D., 1950.

Malhotra, Anju Assistant Professor, Sociology. B.A., Cornell University, 1980; M.A., University of Michigan, 1985; Ph.D., 1989.

Mallinson, Edward T. Professor, College of Veterinary Medicine. V.M.D., University of Pennsylvania, 1956.

Maloney, William Professor, Civil Engineering. B.M.E., University of Delaware, 1969; M.B.A., 1973; Ph.D., University of Michigan, 1976.

Manekin, Charles H. Associate Professor, Hebrew and East Asian. B.A., Yale University, 1975; M.A., Columbia University, 1979; Ph.D., 1984.

Manion, David Instructor, Mechanical Engineering. B.S.E.E., University of Arizona, 1967.

Manning, Raymond Adjunct Professor, Zoology. B.S., University of Miami (Coral Gables), 1956; M.S., 1959; Ph.D., 1963.

Marando, Vincent L. Professor, Government and Politics. B.S., State University at Buffalo, 1960; M.A., Michigan State University, 1964; Ph.D., 1967.

Marasli, Barsam Assistant Professor, Mechanical Engineering. B.S., Bogazici University, Turkey, 1980; M.S., University of Arizona, 1983; Ph.D., 1989.

Marchetti, Gina Associate Professor, Comparative Literature. B.A., Florida State University, 1976; M.A., Northwestern University, 1978; Ph.D., 1982.

Marchionini, Gary J. Associate Professor, College of Library and Information Services. B.A., Western Michigan

University, 1971, M.Ed., Wayne State University, 1974, Ph.D., 1981

Marcinkowski, Marion J. Professor, Mechanical Engineering. B.S., University of Maryland, 1953; M.S., University of Pennsylvania, 1955; Ph.D., 1959.

Marcus, Robert F. Associate Professor, Human Development. B.A., Montclair State College, 1965; M.A., New York University, 1967; Ph.D., Pennsylvania State University, 1973.

Marcus, Steven I. Professor, Electrical Engineering; Director, Institute for Systems Research. B.A., Rice University, 1971; S.M., Massachusetts Institute of Technology, 1972; Ph.D., 1975.

Marcuse, Michael J. Associate Professor, English. B.A., University of Pittsburgh, 1966; M.A., University of Michigan, 1967; Ph.D., 1971.

Marlano, Patrick Professor, Chemistry and Biochemistry. B.S., Fairleigh Dickinson University, 1964; Ph.D., University of Wisconsin, 1969.

Markley, Nelson G. Professor, Mathematics. A.B., Lafayette College, 1962; M.A., Yale University, 1964; Ph.D., 1966.

Marks, Colin H. Professor, Part-time, Mechanical Engineering. B.S., Carnegie Institute of Technology, 1956; M.S., 1957; Ph.D., University of Maryland, 1965.

Marquardt, Warren W. Professor, College of Veterinary Medicine. B.S., University of Minnesota, 1959; M.S., 1961; Ph.D., 1970.

Marquez, Jaime Lecturer, Part-time, School of Public Affairs. B.A., Universidad Catolica Andres Bello (Venezuela), 1978; A.M., University of Pennsylvania, 1981; Ph.D., 1983.

Marschall, Sabrina I. Instructor, Industrial, Technological and Occupational Education. B.S., University of Maryland, 1985; M.Ed., 1990.

Martin, Cynthia L. Assistant Professor, Russian Language and Literature. B.A., University of New Hampshire, 1980; M.A., University of Pennsylvania, 1983; Ph.D., 1990.

Martin, James G. Professor, Psychology. B.S., University of North Dakota, 1951; M.A., University of Minnesota, 1958; Ph.D., 1960.

Martin, L. John Professor Emeritus, College of Journalism. A.B., American University (Cairo), 1947; M.A., University of Minnesota, 1951; Ph.D., 1955.

Martin, Monroe H. Professor Emeritus, Institute for Physical Science and Technology. B.S., Lebanon Valley College, 1928; Ph.D., Johns Hopkins University, 1932.

Martin, Raymond F. Professor, Philosophy. B.A., Ohio State University, 1962; M.A., 1964; Ph.D., University of Rochester, 1968.

Marx, George L. Professor, Counseling and Personnel Services; Director of Articulation, System Administration. B.A., Yankton College, 1953; M.A., State University of Iowa, 1958; Ph.D., 1959.

Masi, Dale Affiliate Professor, College of Business and Management. B.S., College of Mt. St. Vincent; M.S., University of Illinois; Ph.D., Catholic University of America.

Mason, Glenn M. Professor, Physics; Professor, Institute for Physical Science and Technology. B.A., Harvard University, 1965; M.S., University of Chicago, 1967; Ph.D., 1971.

Mather, Ian H. Professor, Animal Sciences. B.Sc., University of Wales, 1966; Ph.D., 1971.

Mather, John C. Adjunct Professor, Physics. B.A., Swarthmore College, 1968; Ph.D., University of California (Berkeley), 1974.

Mathias, J. Kevin Lecturer, Institute of Applied Agriculture. B.S., University of Maryland, 1973; M.S., 1976; Ph.D., 1988.

Matossian, Mary K. Associate Professor, History. B.A., Stanford University, 1951; M.A., American University (Beirut), 1952; Ph.D., Stanford University, 1955.

Matthews, David L. Research Associate Professor, Institute for Physical Science and Technology. B.S., Queens University (Canada), 1949; Ph.D., Princeton University, 1959.

Matthews, Thomas A. Associate Professor, Astronomy. B.A., University of Toronto, 1950; M.S., Case Institute of Technology, 1951; Ph.D., Harvard University, 1956.

Mattick, Joseph F. Professor Emeritus, Animal Sciences. B.S., Pennsylvania State University, 1942; Ph.D., 1950.

Mattingly, Joseph G., Jr. Director, Undergraduate Studies, College of Business and Management; Affiliate Assistant Professor, College of Business and Management. B.S., University of Maryland, 1958; M.B.A., 1966.

Mauriello, Thomas P. Lecturer, Institute of Criminal Justice and Criminology. B.A., Suffolk University, 1973; M.F.S., George Washington University, 1976.

Mavrovouniotis, Michael L. Assistant Professor, Chemical Engineering; Assistant Professor, Institute for Systems Research. Diploma of Engineering, National Technical University, 1984; Ph.D., Massachusetts Institute of Technology, 1988.

Max, Stephen R. Professor, Nutritional Sciences Program. Ph.D., University of Rhode Island, 1966.

Mayergoyz, Isaak Professor, Electrical Engineering; Professor, Institute for Advanced Computer Studies. E.E.Dipl., Polytechnical Institute, Novocherkask, USSR, 1963; Kandidat Nauk, 1968; Doctor Nauk E.E., Cybernetics Inst. of the Ukrainian Acad. of Sci., 1975.

Mayes, Alvin Instructor, Dance. B.A., University of Michigan, 1969.

Mayo, Marlene J. Associate Professor, History. B.A., Wayne State University, 1954; M.A., Columbia University, 1957; Ph.D., 1961.

Mazzocchi, Paul H. Professor, Chemistry and Biochemistry; Acting Dean, Colleges of Agriculture and Life Sciences. B.Sc., Queens College, 1961; Ph.D., Fordham University, 1965.

McAdams, Katherine M. Assistant Professor, College of Journalism. B.A., University of North Carolina, 1972; M.A., 1981; Ph.D., 1988.

McAlister, Brian K. Instructor, Industrial, Technological and Occupational Education. B.S., Western Illinois University, 1982; M.Ed., 1986; Ph.D., University of Illinois, 1991.

McAvoy, Thomas J. Professor, Chemical Engineering. B.A., Brooklyn Polytechnic Institute, 1961; M.A., Princeton University, 1963; Ph.D., 1964.

McCabe, Margaret M. Instructor, Hearing and Speech Sciences. B.S., University of Wisconsin, 1974; M.S., 1976.

McCaleb, Joseph L. Associate Professor, Speech Communication. B.A., Abilene Christian College, 1969; M.Ed., University of Texas (Austin), 1973; Ph.D., 1976.

McCall, Gerald N. Professor, Hearing and Speech Sciences. B.S., Florida State University, 1959; M.A., Northwestern University, 1962; Ph.D., 1964

McCarrick, Earleen M. Associate Professor, Government and Politics. B.A., Louisiana State University, 1953; M.A., 1955; Ph.D., Vanderbilt University, 1964.

McCarthy, Colman Lecturer, Part-time, University Honors Program. B.S., Springhill College, 1960; Honorary Doc. Arts & Letters, Wheeling College, 1976.

McCarthy, Marie F. Assistant Professor, Music. B.A., University College, Dublin (Ireland), 1983, M.M., University of Michigan (Ann Arbor), 1986; Ph.D., 1990.

McCarty, John Assistant Professor, Art. B.A., University of Virginia, 1961; M.F.A., Pratt Institute, 1968.

McClurg, Charles A. Associate Professor, Horticulture. B.S., Iowa State University, 1966; M.S., Pennsylvania State University, 1968; Ph.D., 1970.

McConnell, Kenneth E. Professor, Agricultural and Resource Economics. B.A., University of Florida, 1964, Ph.D., University of Maryland, 1973.

McCoy, Robert Associate Professor, Music. B.A., University of Iowa, 1974; M.A., 1975; D.M.A., University of Southern California, 1982.

McCuen, Richard H. Professor, Civil Engineering. B.S., Carnegie-Mellon University, 1967; M.S., Georgia Institute of Technology, 1969; Ph.D., 1970.

McDaniel, Chad K. Director, Academic Software Development Group, Computer Science Center; Lecturer, Anthropology. A.B., Harvard College (Cambridge), 1972; Ph.D., University of California (Berkeley), 1983.

McDonald, James Professor, Music. B.M., Morningside College, 1962; M.A., University of Iowa, 1964; D.M.A., 1974.

McDowell, David Professor, Institute of Criminal Justice and Criminology. B.S., Portland State University, 1973, M.A., Northwestern University, 1975; Ph.D., 1980.

McDowell, Paula J. Assistant Professor, English. B.A., University of British Columbia, 1982; Ph.D., Stanford University, 1990.

McEwen, Marylu K. Associate Professor, Counseling and Personnel Services. B.S., Purdue University, 1968; M.S., Indiana University, 1970; Ph.D., Purdue University, 1973.

McIlrath, Thomas J. Professor, Institute for Physical Science and Technology. B.S., Michigan State University, 1960; Ph.D., Princeton, University, 1985.

McIntire, Roger W. Associate Dean, Undergraduate Studies; Professor, Psychology. B.A., Northwestern University, 1958; M.A., Louisiana State University, 1960; Ph.D., 1962.

McIntosh, Maria S. Professor, Agronomy. B.S., University of Illinois, 1974; M.S., 1976; Ph.D., 1978.

McIntosh, Wayne V. Associate Professor, Government and Politics. B.A., University of South Carolina, 1973, M.A., Wichita State University, 1974; Ph.D., Washington University, 1981.

McInturff, Mark C. Lecturer, Part-time, School of Architecture. B.Arch., University of Maryland, 1972.

McIntyre, Jennie J. Associate Professor, Sociology. A.B., Howard College, 1960; M.S., Florida State University, 1962; Ph.D., 1966.

McKay, A. Bruce Adjunct Assistant Professor, Education Policy, Planning, and Administration. B.S., Pennsylvania State University, 1960, M.S., American University, 1966; Ed.D., University of Massachusetts, 1971.

McKee, Claude G. Professor, Agronomy. B.S., University of Maryland, 1951; M.S., 1955; Ph.D., 1959

McKenna, Mary Catherine Adjunct Affiliated Assistant Professor, Human Nutrition and Food Systems. B.A., University of Maryland, 1968, Ph.D., 1978

McLaughlin, Francis E. Lecturer, Part-time, College of Business and Management. B.S., University of New Mexico, 1960; J.D., American University, 1965.

McLaughlin, Margaret M. Associate Research Scholar, Special Education. B.A., University of Denver, 1968 M.A., University of Northern Colorado, 1971; Ph.D., University of Virginia, 1977.

McLean, Beverly Lecturer, Urban Studies. M.A., Portland State University, 1978, Ph.D. (forthcoming), 1993.

McLellan, Eileen L. Associate Professor, Geology B.A., University of Cambridge, 1979, Ph.D., 1983.

McLoone, Eugene P. Professor, Education Policy, Planning, and Administration. B.A., LaSalle College, 1951; M.S., University of Denver, 1952; Ph.D., University of Illinois (Urbana), 1961

McNelly, Theodore H. Professor Emeritus, Government and Politics. B.A., University of Wisconsin, 1941; M.A., 1942; Ph.D., Columbia University, 1952.

McWhinnie, Harold J. Associate Professor, Curriculum and Instruction. B.A.E., Art Institute of Chicago, 1953; M.F.A., 1957; Ed.D., Stanford University, 1965.

Medvene, Arnold Associate Professor, Counseling and Personnel Services; Counselor, University Counseling Center. B.S., Temple University, 1959; M.Ed., 1963; Ed.D., University of Kansas, 1968.

Meeker, Barbara F. Professor, Sociology. B.A., University of Kansas, 1961; M.A., Stanford University, 1964; Ph.D., 1966.

Meersman, Roger L. Professor and Chair, Theatre. B.A., Saint Ambrose College, 1952; M.A., University of Illinois (Urbana), 1959; Ph.D., 1962.

Meijer, Marianne S. Associate Professor, French and Italian. Romance Language, University of Leiden (Holland), 1948; M.A., Catholic University, 1960; Ph.D., 1972.

Meiners, Mark R. Associate Professor, Health Education; Associate Director, Center on Aging. B.A., University of Wisconsin, 1969; M.A., Georgetown University, 1972; Ph.D., 1978.

Meisinger, John J. Adjunct Associate Professor, Agronomy. B.S., Iowa State University, 1967; Ph.D., Cornell University, 1976.

Melnik, Walter L. Professor, Aerospace Engineering. B.S., University of Minnesota, 1951; M.S., 1953; Ph.D., 1964.

Menard, John P. Director of Facilities, College of Computer, Mathematical and Physical Sciences. A.B., Saint Michaels College, 1954.

Mench, Joy A. Associate Professor, Poultry Science. B.A., California State University, 1976; Ph.D., University of Sussex, 1983.

Menzer, Robert E. Professor Emeritus, Entomology. B.S., University of Pennsylvania, 1960; M.S., University of Maryland, 1962; Ph.D., University of Wisconsin, 1964.

Merrick, Charles P. Associate Professor Emeritus, Agricultural Engineering. B.S.C.E., University of Maryland, 1933.

Merrill, Horace S. Professor Emeritus (retired), History. B.E., Wisconsin State University (River Falls), 1932; Ph.M., University of Wisconsin, 1933; Ph.D., 1942.

Messersmith, Donald H. Professor Emeritus, Entomology. B.Ed., University of Toledo, 1951; M.S., University of Michigan, 1953; Ph.D., Virginia Polytechnic Institute, 1962.

Meyer, Paul A. Associate Professor, Economics. B.A., Johns Hopkins University, 1961; Ph.D., Stanford University, 1966.

Mignerey, Alice C. Professor, Chemistry and Biochemistry; Acting Associate Dean, Graduate Studies and Research. B.S., University of Rochester, 1971; M.S., 1973; Ph.D., 1975.

Mikulski, Piotr W. Professor, Mathematics; Director, Mathematical Statistics. B.A., Lyceum (Warsaw), 1942; M.S., School of Planning and Statistics, 1952; Ph.D., University of California (Berkeley), 1961.

Milchberg, Howard M. Assistant Professor, Electrical Engineering; Assistant Professor, Institute for Physical Science and Technology. B.S., McMaster University, 1979; Ph.D., Princeton University, 1985.

Miles, Carolyn W. Adjunct Assistant Professor, Part-time, Human Nutrition and Food Systems. B.S., Virginia Polytechnic Institute & State University, 1969, M.S., 1971; Ph.D., 1977.

Milke, James A. Assistant Professor, Fire Protection Engineering. B.S., University of Maryland, 1976; M.S., 1981; Ph.D., 1991.

Miller, Arthur G. Professor, Art History. B.A., Colby College, 1964; M.A., Ecole du Louvreity, 1965; Ph.D., Harvard University, 1969.

Miller, Cary J. Assistant Professor, Chemistry and Biochemistry. B.S., Poma College, 1982; Ph.D., University of California (Berkeley), 1987.

Miller, Douglass R. Adjunct Professor, Entomology. B.S., University of California (Davis), 1964; M.S., 1965; Ph.D., 1969.

Miller, Gerald R. Professor, Chemistry and Biochemistry. B.S., University of Wisconsin, 1958; M.S., University of Illinois, 1960; Ph.D., 1962.

Miller, James R. Professor Emeritus, Agronomy. B.S., University of Maryland, 1951; M.S., 1953; Ph.D., 1956.

Miller, Joseph W. Lecturer, English. B.A., Saint John Fisher College, 1958; M.A., University of Rochester, 1960.

Miller, Mary Rita Professor Emerita, English. B.A., University of Iowa, 1941; M.A., University of Denver, 1959; Ph.D., Georgetown University, 1969.

Miller, Merl E. Associate Professor, Agricultural and Extension Education. B.S., Oklahoma State University, 1958; M.S., 1971; Ed. E., 1981.

Miller, Raymond Professor, Computer Science; Director, Center of Excellence in Space Data and Information Sciences. B.S., University of Wisconsin (Madison), 1950; B.S., University of Illinois (Urbana), 1954; M.S., 1955; Ph.D., 1957.

Miller, Raymond J. Professor, Agronomy; President, MD Inst for Agriculture and Natural Resources. B.S., University of Alberta, 1957; M.S., Washington State University, 1960; Ph.D., Purdue University, 1962.

Miller, Richard P. Lecturer, Part-time, College of Business and Management. B.S., DePaul University, 1949; M.B.A., Northwestern University, 1950.

Mills, Judson R. Professor, Psychology. B.S., University of Wisconsin, 1953; Ph.D., Stanford University, 1958.

Millson, John J. Professor, Mathematics. B.S., Massashusetts Institute of Technology, 1968; Ph.D., University of California (Berkeley), 1973.

Millstein, Flora Lecturer, Part-time, Family and Community Development. B.S., University of Maryland, 1974; M.S., 1977.

Milor, Linda Assistant Professor, Electrical Engineering; Assistant Professor, Institute for Systems Research. B.S., University of California (Berkeley), 1982; Ph.D., 1990.

Minis, Ioannis Assistant Professor, Mechanical Engineering; Assistant Professor, Institute for Systems Research. Diploma, National Technical University of Athens, 1982; M.S., Clarkson University, 1983; Ph.D., University of Maryland, 1988.

Minker, Jack Professor, Computer Science; Professor, Institute for Advanced Computer Studies. B.A., City University of New York (Brooklyn College), 1949; M.S., University of Wisconsin, 1950; Ph.D., University of Pennsylvania, 1959.

Mintz, Lawrence E. Associate Professor, American Studies. B.A., University of South Carolina, 1966; M.A., Michigan State University, 1967; Ph.D., 1969.

Mintz, Samuel Assistant Professor, Institute for Urban Studies and Planning; Director of Undergraduate Studies, Institute for Urban Studies. M.A., University of District of Columbia, 1971, M.C.P., Massachusetts Institute of Technology, 1979, Ph.D., 1985.

Misner, Charles W. Professor, Physics. B.S., University of Notre Dame, 1952; M.A., Princeton University, 1954, Ph.D., 1957.

Mitchell, Robert D. Associate Professor, Geography. M.A., University of Glasgow, 1962; Ph.D., University of Wisconsin, 1968.

Mitter, Charles Associate Professor, Entomology. B.S., Stanford University, 1970; Ph.D., State University of New York (Stony Brook), 1977.

Mityga, Henry G. Lecturer, Institute of Applied Agriculture; Lecturer, Horticulture. B.S., Cornell University, 1966; M.S. Purdue University, 1969, Ph.D., University of Maryland, 1976.

Miura, Eiko Instructor, Hebrew and East Asian. B.A., Kyoto University (Japan), 1962.

Modarres, Mohammad Professor, Materials and Nuclear Engineering. B.S., Tehran Polytechnic Institute, 1974; M.S., Massachusetts Institute of Technology, 1976; Ph.D., 1979.

Moghadam, Linda Z. Lecturer, Sociology. B.A., University of Maryland, 1976; M.A., 1981; Ph.D., 1989.

Mohanty, Sashi B. Professor and Associate Dean, College of Veterinary Medicine. B.V.Sc., Bihar University, 1956; M.S., University of Maryland, 1961; Ph.D., 1963.

Mohapatra, Rabindra Nath Professor, Physics. B.Sc., Uktal University (India), 1964; M.Sc., Delhi University (India), 1966; Ph.D., University of Rochester, 1969.

Mokhtari, Manouchehr Assistant Professor, Textiles and Consumer Economics. B.S., University of Tehran, 1977; M.A., University of Houston, 1984; Ph.D., 1986.

Molla, Bekele Affiliate Assistant Professor, Counseling and Personnel Services; Staff, University Counseling Center. B.S., Springfield College, 1967; M.A., Howard University, 1972; Ph.D., University of Maryland, 1978.

Montgomery, Edward Associate Professor, Economics. B.S., Pennsylvania State University, 1976; A.M., Harvard University, 1980; Ph.D., 1982.

Montgomery, William Professor, Music. B.Mus., Cornell College, 1953; M.Mus., Catholic University of America, 1957; Ph.D., 1975.

Moon, Sherrill Associate Professor, Special Education. B.A., Randolph-Macon Woman's College, 1974; M.Ed., James Madison University, 1976; Ed.D., University of Virginia, 1983.

Moore, John H. Professor, Chemistry and Biochemistry. B.S., Carnegie Institute of Technology, 1963; M.A., Johns Hopkins University, 1965; Ph.D., 1967.

Moore, John R. Professor, Agricultural and Resource Economics. B.S., Ohio State University, 1951; M.S., Cornell University, 1955; Ph.D., University of Wisconsin, 1959.

Moore, Thomas Academic Advisor, College of Arts and Humanities; Instructor, English. B.A., Towson State University, 1973; M.A., Pennsylvania State University, 1975; Ph.D., University of Maryland, 1983.

Moquin, George A. Assistant to the Dean, Summer Programs. B.A., University of Maryland, 1971.

Morgan, H. Gerthon Professor Emeritus, Human Development. B.A., Furman University, 1940; M.A., University of Chicago, 1943; Ph.D., 1946.

Morton, Eugene S. Adjunct Professor, Zoology. B.S., Denison University, 1962; M.S., Yale University, 1968; Ph.D., 1969.

Moser, Thomas Assistant Professor, English. B.A., Harvard University, 1973; M.A., Yale University, 1979; Ph.D., Stanford University, 1987.

Moser-Veillon, Phyllis B. Professor, Human Nutrition and Food Systems. B.S., University of Maryland, 1969; M.S., 1973; Ph.D., 1976.

Moses, Claire G. Professor, Women's Studies Program. A.B., Smith College, 1963; M. Phil., George Washington University, 1972; Ph.D., 1978.

Mosleh, Eli Assistant Professor, Chemical and Nuclear Engineering; Assistant Professor, Reliability Engineering. B.S., University of Technology (Tehran), 1975; M.S., University of California (Los Angeles), 1978; Ph.D., 1981.

Moss, Alfred A. Associate Professor, History. B.A., Lake Forest College, 1965; M.Div., Episcopal Divinity School, 1968; M.A., University of Chicago, 1972; Ph.D., 1977.

Moss, Lawrence Professor, Music. B.A., University of California (Los Angeles), 1949; M.A., University of Rochester, 1950; Ph.D., University of Southern California, 1957.

Mossman, Carol A. Associate Professor, French and Italian. B.A., University of New Mexico, 1975; M.A., Rice University, 1979; Ph.D., 1982.

Motta, Jerome J. Associate Professor, Botany. A.B., San Francisco State College, 1959; M.A., 1964; Ph.D., University of California (Berkeley), 1968.

Mount, David Associate Professor, Computer Science. B.S., Purdue University, 1977; Ph.D., 1983.

Mowrer, Frederick W. Assistant Professor, Fire Protection Engineering. B.S., Illinois Institute of Technology, 1976; M.S., University of California (Berkeley), 1981; Ph.D., 1987.

Mueller, Dennis C. Professor, Economics. B.S., Colorado College, 1962; Ph.D., Princeton University, 1966.

Mulchi, Charles L. Professor, Agronomy. B.S., North Carolina State University, 1964; M.S., 1967; Ph.D., 1970.

Muncy, Robyn L. Associate Professor, History. B.A., Lindenwood College, 1977; Ph.D., Northwestern University, 1977.

Mundy, Lee G. Assistant Professor, Astronomy. B.S., California Institute of Technology, 1977; Ph.D., University of Texas (Austin), 1984.

Munn, Robert J. Professor, Chemistry and Biochemistry; Acting Assistant Vice President, Academic Affairs. B.Sc., University of Bristol, 1957; Ph.D., 1961.

Munno, Frank J. Professor, Materials and Nuclear Engineering. B.S., Waynesburg College, 1957; M.S., University of Florida, 1962; Ph.D., 1964.

Murphy, Dennis W. Associate Professor, Poultry Science. B.S., Michigan State University, 1961; M.S., University of Michigan, 1963; Ph.D., Michigan State University, 1974.

Murphy, Thomas J. Associate Professor, Chemistry and Biochemistry. B.S., Fordham University, 1963; Ph.D., Rockefeller University, 1968.

Murrell, Peter Professor, Economics. B.Sc., London School of Economics, 1971, M.Sc., 1972; Ph.D., University of Pennsylvania, 1977.

Muse, Stephen A. Lecturer, Part-time, School of Architecture. B.Arch., University of Maryland, 1973; M.Arch., Cornell University, 1976.

Myricks, Noel Associate Professor, Family and Community Development. B.A., San Francisco University, 1965; M.S., 1967; J.D., Howard University, 1970; Ed.D., American University, 1974.

Nacht, Michael Professor and Dean, School of Public Affairs; Affiliate Professor, Government and Politics. B.S., New York University, 1963; M.S., Case Western Reserve University, 1966; M.S., New York University, 1969, M.A., New School of Social Research, 1970; Ph.D., Columbia University, 1973.

Naharro-Calderon, Jose Marie Assistant Professor, Spanish and Portuguese. B.A., Allegheny College, 1974; M.A., University of Pennsylvania, 1977; Ph.D., 1985.

Nakajima, Kazuo Associate Professor, Electrical Engineering, Associate Professor, Institute for Advanced Computer Studies. B.S., Osaka University, 1973; M.S., 1975; Ph.D., Northwestern University, 1979.

Narayan, Prakash Associate Professor, Electrical Engineering; Associate Professor, Institute for Systems Research. B. Tech., Indian Institute of Technology, 1976; M.S., Washington University (St. Louis), 1978; Ph.D., 1981.

Nau, Dana S. Associate Professor, Computer Science; Associate Professor, Institute for Systems Research. B.S., University of Missouri, Rolla, 1974; A.M., Duke University, 1976; Ph.D., 1979.

Nelson, Judd O. Associate Professor, Entomology. B.S., University of Wisconsin, 1969; M.S., 1972; Ph.D., 1974.

Nemes, Graciela P. Professor Emeritus, Spanish and Portuguese. B.S., Trinity College (Vermont), 1942; M.A., University of Maryland, 1946; Ph.D., 1952.

Neri, Umberto Professor, Mathematics. B.S., University of Chicago, 1961; M.S., 1962; Ph.D., 1966.

Neubert, Debra A. Associate Professor, Special Education. B.S., University of Wisconsin, 1976; M.Ed., University of Maryland, 1981; Ph.D., 1985.

Neuman, M. Delia Associate Professor, College of Library and Information Services. A.B., Chestnut Hill College, 1966; A.M., University of Michigan (Ann Arbor), 1972; Ph.D., Ohio State University (Columbus), 1986.

Neustadtl, Alan Assistant Professor, Sociology. B.A., Bates College, 1979; M.A., University of Massachusetts, 1982; Ph.D., 1987.

Newby, Hayes A. Professor Emeritus, Hearing and Speech Sciences. A.B., Ohio Wesleyan University, 1935; M.A., University of Iowa, 1939; Ph.D., 1947.

Newcomb, Robert W. Professor, Electrical Engineering. B.S., Purdue University, 1955; M.S., Stanford University, 1957; Ph.D., University of California (Berkeley), 1960.

Newell, Clarence A. Professor Emeritus, Education Policy, Planning, and Administration. B.A., Hastings College, 1935; M.A., Columbia University, 1939; Ph.D., 1943.

Newhagen, John E. Assistant Professor, College of Journalism. B.A., University of Colorado, 1976; M.A., 1979; M.A., Stanford University, 1989; Ph.D., 1990.

Newman, John M. Lecturer, Part-time, University Honors Program. B.A., George Washington University, 1973; M.A., 1979; Ph.D., 1991.

Newton, James N. Assistant to the Vice President/Provost, Academic Affairs. B.S., Towson State University, 1968; M.A., Bowdoin College, 1974

Ng, Timothy J Acting Dean, Graduate Studies and Research; Professor, Horticulture. B.S., University of California (Berkeley), 1969; M.S., Purdue University, 1972; Ph.D., 1976.

Nickels, William G. Associate Professor, College of Business and Management. B.S.B.A., Ohio State University, 1962; M.B.A., Western Reserve University, 1966; Ph.D., Ohio State University, 1969

Nicklason, Fred H. Assistant Professor, History. B.S., Gustavus Adolphus College, 1953; M.A., University of Pennsylvania, 1955; Ph.D., Yale University, 1967.

Niese, Henry Associate Professor, Art. Cert., The Cooper Union, 1949; Cert., Academie Grande Chaumiere (Paris), 1949; B.F.A., Columbia, 1955.

Niles, Lyndrey A. Lecturer Part-time, Speech Communication. A.A., Caribbean College, West Indies, 1956, B.A., Columbia Union College, Maryland, 1963; M.A., University of Maryland, 1965; Ph.D., Temple University, 1973.

Nochetto, Ricardo H. Associate Professor, Mathematics. Licenciado, University of Rosario (Argentina), 1976; Ingeniero Electricista, 1979, Ph.D., University of Buenos Aires, 1983.

Nolan, Nancy L. Adjunct Assistant Professor, Part-time, Human Nutrition and Food Systems. B.A., Rhode Island College, 1983; M.S., Kansas State University, 1985, Ph.D., 1987

Noll, James Wm. Associate Professor, Education Policy, Planning, and Administration. B.A., University of Wisconsin (Milwaukee), 1954; M.S., 1961, Ph.D., University of Chicago, 1978.

Norman, Howard Associate Professor, English. B.A., Western Michigan University, 1972; M.A., Indiana University, 1976.

Norman, Kent L. Associate Professor, Psychology B.A., Southern Methodist University, 1969, M.A., University of Iowa, 1971; Ph.D., 1973.

Northrup, Lesley Lecturer, Part-time, University Honors Program. B.A., University of Wisconsin (Madison), 1970; M. Div., Episcopal Divinity School, 1980; M.A., Catholic University of America, 1983; Ph.D., 1990

Norton, Virginia P. Lecturer, Human Nutrition and Food Systems. B.S., University of Colorado, 1958; Dietetic Internship Cert., Brooke General Hospital, 1960; M.Ed., University of North Carolina, 1971; Ph.D., University of Maryland, 1974.

Oates, Wallace E. Professor, Economics. M.A., Stanford University, 1959; Ph.D., 1965.

O'Brien, Stephen J. Adjunct Professor, Zoology. B.S., St. Francis College, 1966; Ph.D., Cornell University, 1971.

Obrimski, Francis, Joseph Lecturer, Part-time, Aerospace Engineering. B.S., University of Maryland, 1959; M.E.A., George Washington University, 1969; Diploma, Naval War College, 1979.

O'Brochta, David A. Assistant Professor, Entomology B.S., University of Kansas, 1977; Ph.D., University of California, 1984.

O'Connell, Donald W. Professor Emeritus, Economics. B.A., Columbia University, 1937; M.A., 1938; Ph.D., 1953.

Odell, Stanley J. Associate Professor, Philosophy B.A., University of Kansas, 1960; M.A., University of Illinois (Urbana), 1962; Ph.D., 1967.

O'Flahavan, John F. Assistant Professor, Curriculum and Instruction. B.A., University of Colorado (Boulder), 1981, M.A., 1982; Ph.D., University of Illinois, 1988

Ogorodnikova, Kira Assistant Professor, Russian Language and Literature. M.A., Leningrad State University, 1977, Ph.D. Candidate, Bryn Mawr College, 1992.

O'Grady, Kevin E. Associate Professor, Psychology B.A., Washington and Lee University, 1972; M.S., Old Dominion University, 1976, Ph.D., University of Connecticut, 1980.

Oh, Bonnie B.C. Associate Professor, Hebrew and East Asian; Associate Dean, Undergraduate Studies B.A., Columbia University, 1959; M.A., Georgetown University, 1964, Ph.D., University of Chicago, 1974

Ohadi, Michael M. Assistant Professor, Mechanical Engineering. B.S., Tehran University (Iran), 1977, M.S., Southern Illinois University (Carbondale), 1980, Me.D., Northeastern University, 1982, Ph.D., University of Minnesota, 1986.

O'Hara, George J. Research Associate, Mechanical Engineering. B.S., University of Massachusetts, 1953; M.S., 1955.

O'Haver, Thomas C. Professor, Chemistry and Biochemistry. B.S., Spring Hill College, 1963; Ph.D., University of Florida, 1968.

O'Leary, Ronald T. Associate Professor, Theatre. B.S., Bowling Green State University, 1960; M.A., 1961; M.F.A., University of Wisconsin, 1964; Ph.D., 1966.

Olek, Anthony T. Director Biology Program, Zoology. B.A., Oakland University, 1973; Ph.D., State University of New York, 1979.

Olian, Judith D. Associate Professor, College of Business and Management. B.A., Hebrew University (Jerusalem), 1974; M.S., University of Wisconsin (Madison), 1977; Ph.D., 1980.

Oliver, Craig S. Professor, Horticulture; Director, Cooperative Extension Service; Associate Vice Chancellor, Agriculture and Natural Resources. B.S., Pennsylvania State University, 1957; M.Ed., 1960; Ph.D., Ohio State University, 1968.

Olsen, Lola M. Lecturer, Part-time, Geography. B.A., University of Maryland, College Park, 1969; M.A., University of Maryland, College Park, 1985.

Olson, Alison G. Professor, History. B.A., University of California (Berkeley), 1952; M.A., 1953; Ph.D., Oxford University (England), 1956.

Olson, Keith W. Professor, History. B.A., State University of New York (Albany), 1957; M.A., ; Ph.D., University of Wisconsin, 1964.

Olson, Mancur L. Jr. Distinguished Professor, Economics; Affiliate Professor, Government and Politics; Affiliate Faculty, School of Public Affairs. B.S., North Dakota State University, 1954; B.A., Oxford University, 1956; M.A., 1960; Ph.D., Harvard University, 1963.

Olson, Orrin O. Associate Professor, Music. A.B., Sacramento State College, 1960; M.Mus., Indiana University, 1961.

Olver, Frank W. Research Professor Emeritus, Mathematics; Research Professor, Institute for Physical Science and Technology. B.Sc., University of London, 1945; M.Sc., 1948; D.Sc., 1961.

Oliver, Peter J. Professor, Mathematics. Sc.B., Brown University, 1973; Ph.D., Harvard University, 1976.

Ondov, John M. Associate Professor, Chemistry and Biochemistry. B.S., Muhlenberg College, 1970; Ph.D., University of Maryland, 1974.

Oppenheimer, Joe A. Professor, Government and Politics. A.B., Cornell University, 1963; M.A., University of Michigan, 1964; Ph.D., Princeton University, 1970.

Oruc, Ahmet Y. Associate Professor, Electrical Engineering; Associate Professor, Advanced Computer Studies. B.S., Middle East Technology University (Ankara, Turkey), 1976; M.S., University of Wales (Cardiff), 1978; Ph.D., Syracuse University, 1983.

Osborn, John E. Professor, Mathematics. B.S., University of Minnesota, 1958; M.S., 1963; Ph.D., 1965.

Ostas, Daniel T. Assistant Professor, College of Business and Management. B.S., Purdue University, 1977; J.D., Indiana University, 1980; M.B.A., 1986; Ph.D., 1990.

Osteen, James M. Assistant Professor, Counseling and Personnel Services. B.S., University of Tennessee (Knoxville), 1967; M.S., 1968; Ph.D., Michigan State University, 1980.

Oster, Rose-Marie Professor, Germanic and Slavic Languages and Literatures. M.A., Stockholm University, 1956; D.Phil., Kiel University (Germany), 1958.

O'Sullivan, Sylvia Lecturer, Part-time, University Honors Program. B.A., University of Maryland University College, 1976; M.A., University of Maryland at College Park, 1981; Ph.D., 1986.

Otani, Akira Assistant Professor, Counseling and Personnel Services. B.A., Sophia University (Tokyo), 1978; M.A., University of West Virginia, 1979; Ed.D., 1985.

Ott, Edward Professor, Electrical Engineering; Professor, Physics; Professor, Laboratory for Plasma Research. B.S., The Cooper Union, 1963; M.S., Polytechnic Institute of Brooklyn, 1965; Ph.D., 1967

Ottinger, Mary Ann Professor, Poultry Science. B.S., University of Maryland, 1972; M.S., 1974; Ph.D., 1977.

Owens, Lynn M. Instructor, Kinesiology. B.S., University of Maryland, 1978; M.A., 1984.

Owings, James C. Professor, Mathematics. B.S., Dartmouth College, 1962; Ph.D., Cornell University, 1966.

Pecheco, Jose E. Professor, Spanish and Portuguese. Doctor Honoris Causa, Universidad Autonoma de Sinaloa (Mexico), 1979.

Pai, Shih I. Professor Emeritus, Institute for Physical Science and Technology. B.S., National Central University (China), 1935; M.S., Massachusetts Institute of Technology, 1938; Ph.D., California Institute of Technology, 1940.

Paik, Ho Jung Professor, Physics. B.S., Seoul National University, 1966; M.S., Stanford University, 1970; Ph.D., 1974.

Panagariya, Arvind Professor, Economics. B.A., University Rajasthan, 1971; M.A., 1973; M.A., Princeton University, 1977; Ph.D., 1978.

Pandelidis, Ioannis O. Assistant Research Scientist, Mechanical Engineering. B.S., University of Wisconsin (Madison), 1976; M.S., 1978; Ph.D., 1983.

Panichas, George A. Professor Emeritus, English. B.A., American International College, 1951; M.A., Trinity College (Connecticut), 1952; Ph.D., Nottingham University, 1961.

Pantalone, Vincent R. Lecturer, Part-time, College of Business and Management. B.A., Yale University, 1954; J.D., University of Connecticut School of Law, 1959.

Pao, Eleanor M. Adjunct Associate Professor, Human Nutrition and Food Systems. B.S., Cornell University, 1945; M.S., Ohio State University, 1968; Ph.D., 1977.

Paoletti, Jo B. Associate Professor, Textiles and Consumer Economics; Associate Professor, American Studies. B.S., Syracuse University, 1971; M.S., University of Rhode Island, 1976; Ph.D., University of Maryland, 1980.

Papadopoulos, Konstantinos Professor, Physics and Astronomy. B.S., University of Athens (Greece), 1960; M.S., Massachusetts Institute of Technology, 1965; Ph.D., University of Maryland, 1968.

Papadopoulos, Konstantionos Professor, Astronomy. B.Sc., University of Athens, 1960; M.Sc., Massachusetts Institute of Technology, 1965; Ph.D., University of Maryland, 1968.

Papamarcou, Adrianos Assistant Professor, Electrical Engineering; Assistant Professor, Institute for Systems Research. B.A., Cambridge University (England), 1981; M.S., Cornell University, 1983; Ph.D., 1987.

Papenfuse, Edward C. Adjunct Associate Professor, History. B.A., American University, 1965; M.A., University of Colorado, 1967; Ph.D., Johns Hopkins University, 1973.

Park, Robert L. Professor, Physics. B.S., University of Texas (Austin), 1958; M.A., 1960; Ph.D., Brown University, 1964.

Parker, Rosemary Director, Center for Minorities in Science and Engineering. A.B., Lafayette College, 1977; M.S., State University of New York (Oswego), 1979.

Parks, Sheri L. Associate Professor, American Studies. B.A., University of North Carolina (Chapel Hill), 1978; M.A., University of Massachusetts, 1983, Ph.D., 1985.

Pasch, Alan Professor, Philosophy. B.A., University of Michigan, 1949, M.A., New School for Social Research, 1952; Ph.D., Princeton University, 1955.

Pasmanick, Kenneth Assistant Professor, Part-time, Music. B.A., American University, 1962.

Paternoster, Raymond Professor, Institute of Criminal Justice and Criminology. B.A., University of Delaware, 1973; M.S., Southern Illinois University, 1975; Ph.D., Florida State University, 1978.

Peterson, Judith Associate Professor, College of Journalism. B.A., Hollins College, 1960; M.A., Auburn University, 1972; Ph.D., 1975

Pati, Jogesh C. Professor, Physics. B.S., Ravenshaw College, 1955; M.S., Delhi University (India), 1957; Ph.D., University of Maryland, 1960.

Patterson, Glenn W. Professor, Botany. B.S., North Carolina State University, 1960; M.S., University of Maryland, 1963; Ph.D., 1964.

Patterson, Richard E. Adjunct Assistant Professor, Human Nutrition and Food Systems. B.S., Drexel University, 1970; M.S., University of Maryland, 1972; Ed.D., George Washington University, 1987.

Patterson, William V. Assistant Professor, Theatre. B.F.A., University of Oklahoma, 1970; M.F.A., University of Utah, 1972.

Pavela, Gary M. Lecturer, Part-time, University Honors Program. B.A., Lawrence College, 1968; M.A., Wesleyan University, 1970; J.D., University of Illinois, 1973.

Pavlin, Vjekoslav Research Associate, Mechanical Engineering. Dipl, C.F., University of Sarajevo (Yug.), 1961; M.Sc., 1969; Ph.D., Catholic University, 1976.

Payerle, Laszlo Assistant Professor, Music. B.Mus., University of Maryland, 1960; M.Mus., University of Texas, 1962.

Payne, Richard Assistant Professor, Zoology. B.A., Trinity College (Cambridge, England), 1977; Ph.D., The Australian National University, 1982.

Pearce, Alan Lecturer Part-time, College of Business and Management. B.Sc., London School of Economics, 1963; M.Sc., 1968; Ph.D., Indiana University, 1972.

Pearson, Barry L. Professor, English. B.A., University of Michigan, 1968; M.A., Indiana University, 1970; Ph.D., 1977.

Pease, John Associate Professor, Sociology. B.S., Western Michigan University, 1960; M.A., Michigan State University, 1963; Ph.D., 1968.

Peaslee, David C. Visiting Professor, Physics. A.B., Princeton University, 1943; Ph.D., Massachusetts Institute of Technology, 1948.

Pecht, Michael G. Associate Professor, Mechanical Engineering; Associate Professor, Institute for Systems Research. B.S., University of Wisconsin (Madison), 1976; M.S., 1979; Ph.D., 1982.

Peckerar, Martin C. Professor, part-time, Electrical Engineering. B.S., State University of New York (Stony Brook), 1968; M.S., University of Maryland, 1971, Ph.D., 1976.

Pego, Robert L. Associate Professor, Mathematics; Associate Professor, Institute for Physical Science and Technology. A.B., University of Chicago, 1978; Ph.D., University of California (Berkeley), 1982.

Pelczar, Michael J., Jr. Professor Emeritus, Microbiology. B.S., University of Maryland, 1936; M.S., 1938; Ph.D., University of Iowa, 1941.

Penner, Merrilynn J. Professor, Psychology. B.A., Harvard University, 1966; Ph.D., University of California (San Diego), 1970.

Perinbam, B. Marie Associate Professor, History. B.A., London University (England), 1955; M.A., University of Toronto, 1959; Ph.D., Georgetown University, 1969.

Perkins, Morelend Professor Emeritus, Philosophy. A.B., Harvard College, 1948; A.M., Harvard University, 1949; Ph.D., 1953.

Perlis, Donald R. Associate Professor, Computer Science. B.S., Purdue University, 1966; Ph.D., New York University, 1972; Ph.D., University of Rochester, 1981.

Perlroth, Lynn B. Instructor, Part-time, Hearing and Speech Sciences. B.S., Indiana University, 1963; M.A., Stanford University, 1964.

Pertmer, Gary A. Associate Professor/Acting Director, Materials and Nuclear Engineering. B.S., Iowa State University, 1971; M.S., University of Missouri (Columbia), 1973; Ph.D., 1978.

Peters, Robert R. Associate Professor, Animal Sciences. B.S., University of Minnesota, 1973; M.S., 1975; Ph.D., Michigan State University, 1980.

Peterson, Carla L. Associate Professor, English; Associate Professor, Comparative Literature. B.A., Radcliffe College, 1965; Ph.D., Yale University, 1976.

Peterson, William S. Professor, English. B.A., Walla Walla College, 1961; M.A., University of Wisconsin, 1962; Ph.D., Northwestern University, 1968.

Pfister, Guenter G. Professor and Chair, Germanic and Slavic Languages and Literatures. B.S., Bowling Green State University, 1963; M.A., Michigan State University, 1965; Ph.D., University of Kansas, 1970.

Phaf, Wihelmina Associate Professor, Spanish and Portuguese. B.A., Gymnasium A, Amersfoort (The Netherlands), 1966; M.A., Lateinamerika-Institut, Free University (Berlin), 1973; Ph.D., 1984.

Phelps, Thomas C. Lecturer, Part-time, College of Library and Information Services. B.F.A., Utah State University, 1968; M.F.A., 1968; M.L.S., University of Oregon, 1972.

Phillips, Sally J. Associate Professor, Kinesiology. B.S., Slippery Rock State College, 1964; M.Ed., Colorado State University, 1969; Ph.D., University of Wisconsin, 1978.

Phillips, Warren R. Professor, Government and Politics. B.A., Northwestern University, 1963; M.S., California State University (San Francisco), 1966; Ph.D., University of Hawaii, 1969.

Phillips, William Adjunct Professor, Physics. B.S., Juniata College, 1970; Ph.D., Massachusetts Institute of Technology, 1976.

Pichler, Pegaret S. Assistant Professor, College of Business and Management. B.S., Cornell University, 1979; M.S., Stanford University, 1983; Ph.D., 1989.

Pierce, Sidney K., Jr. Professor, Zoology. B.Ed., University of Miami, 1966; Ph.D., Florida State University, 1970.

Pihlak, Madis Associate Professor, Horticulture. B.E.S., University of Waterloo (Canada), 1976; M.C.P., University of California (Berkeley), 1980; M.L.A., 1983.

Pilato, Robert S. Assistant Professor, Chemistry. B.S., Drexel University,, 1985; Ph.D., Pennsylvania State University, 1989.

Pinker, Rachel Associate Professor, Meteorology. M.Sc., Hebrew University (Israel), 1966; Ph.D., University of Maryland, 1976.

Piomelli, Ugo Assistant Professor, Mechanical Engineering. B.S., Universita degli Studi di Napoli (Italy), 1979; M.S., University of Notre Dame, 1984, Ph.D., Stanford University, 1988.

Piper, Don C. Professor, Government and Politics. B.A., University of Maryland, 1954; M.A., 1958; Ph.D., Duke University, 1961.

Piper, Rowena W. Instructor, Zoology. B.S., Midwestern University, 1954; M.A., Duke University, 1962.

Pirages, Dennis A. Professor, Government and Politics. B.A., State University of Iowa, 1964; Ph.D., Stanford University, 1968.

Platt, Christopher J. Adjunct Associate Professor, Zoology. B.S., University of Chicago, 1966; Ph.D., University of California (San Diego), 1972.

Plischke, Elmer Professor Emeritus, Government and Politics. Ph.B., Marquette University, 1937; M.A., American University, 1933; Ph.D., Clark University, 1943.

Plude, Dana Associate Professor, Psychology. B.A., State University of New York, 1976; M.A., Syracuse University, 1979; Ph.D., 1980.

Plumly, Stanley Professor, English. B.A., Wilmington College, 1962; M.A., Ohio University, 1968; Ph.D., 1970.

Poffenberger, Paul R. Professor Emeritus, Agricultural and Resource Economics; Associate Dean, College of Agriculture. B.S., University of Maryland, 1935; M.S., 1937; Ph.D., American University, 1953.

Pogue, Stephanie E. Associate Professor, Art; Acting Assistant Dean, College of Arts and Humanities. B.F.A., Howard University, 1966; M.F.A., Cranbrook Academy of Art, 1968; M.A., Vanderbilt University, 1980.

Poirier, M. Lynn Instructor, Maryland English Institute. B.A., Trinity College, 1977; M.A., University of Delaware, 1981.

Poist, Helena S. Lecturer, Part-time, College of Business and Management. B.S., University of Maryland, 1972; M.B.A., 1980.

Polakoff, Murray E. Professor, Economics; Professor, Business and Management. B.A., New York University, 1946; M.A., Columbia University, 1949; Ph.D., 1955.

Poli, Rinaldo Associate Professor, Chemistry and Biochemistry. B.S., University of Pisa (Italy), 1981; Ph.D., Scuola Normale Superiore (Pisa, Italy), 1985.

Ponnamperuma, Cyril Professor, Chemistry and Biochemistry. B.A., University of Madras, 1948; B.Sc., University of London, 1959, Ph.D., University of California (Berkeley), 1962.

Popper, Arthur N. Professor and Chair, Zoology. B.A., New York University (Bronx), 1964; Ph.D., City University of New York, 1969.

Porges, Stephen W. Professor, Human Development. B.A., Drew University, 1966; M.S., Michigan State University, 1968; Ph.D., 1970.

Porter, Adam Assistant Professor, Computer Science. B.A., California State University, 1986; M.S., University of California (Irvine), 1988; Ph.D., 1991.

Portz, John Director Emeritus of the Honors Program. B.S., Duke University, 1937; M.A., Harvard University, 1941; Ph.D., 1958.

Potter, Michael Adjunct Professor, Zoology. A.B., Princeton University, 1945; M.D., University of Virginia, 1949.

Pourdeyhimi, Benhem Associate Professor, Textiles and Consumer Economics. L.T.I., Huddersfield Polytechnic (U.K.), 1976; A.T.I., 1978; Ph.D., Leeds University (U.K.), 1982.

Power, Paul W. Professor, Counseling and Personnel Services. B.A., Saint Paul's College, 1953; M.S., San Diego State University, 1971; Sc.D., Boston University, 1974.

Powers, William L. Associate Dean, School of Public Affairs. B.A., University of Michigan, 1976; M.P.P., 1978, M.Econ., 1982; J.D., 1982.

Pozonsky, Charles J. Instructor, Industrial, Technological and Occupational Education. B.S., California University of Pennsylvania, 1987

Prange, Richard E. Professor, Physics. M.S., University of Chicago, 1955; Ph.D., 1958.

Prather, Elizabeth S. Professor, Human Nutrition and Food Systems. B.S., Auburn University, 1951; M.S., 1955; Ph.D., Iowa State University, 1963.

Pratt, Minnie B. Lecturer, Part-time, Women's Studies Program. B.A., University of Alabama (Tuscaloosa), 1968; Ph.D., University of North Carolina (Chapel Hill), 1979.

Presser, Harriet Professor, Sociology. B.A., George Washington University, 1959, M.A., University of North Carolina, 1962; Ph.D., University of California (Berkeley), 1969.

Presser, Stanley Professor, Sociology. B.A., Brown University, 1971; Ph.D., University of Michigan, 1977.

Pressley, George Michael Professor, Human Development. B.A., Northwestern University, 1973; Ph.D., University of Minnesota, 1977.

Pressly, William L. Associate Professor, Art History. B.A., Princeton University, 1966; M.A., 1969; Ph.D., New York University, 1974.

Presson, Joelle C. Faculty Research Assistant and Director Undergrad Studies, Zoology. B.A., University of South Florida, 1974; M.A., 1977; Ph.D., University of Oregon, 1982.

Prestegaard, Karen L. Associate Professor, Geology. B.A., University of Wisconsin, 1976; M.S., University of California (Berkeley), 1979; Ph.D., 1982.

Preston, Lee E. Professor, College of Business and Management. B.A., Vanderbilt University, 1951, M.A., Harvard University, 1953; Ph.D., 1958.

Price, Richard Professor, History. B.A., University of Sussex, 1965; Ph.D., 1968.

Prince, Stephen D. Associate Professor, Geography. B.Sc., University of Bristol, 1966; Ph.D., University of Lancaster, 1971.

Promey, Sally Assistant Professor, Art History. B.A., Hiram College, 1975; M.A., Yale University, 1978; Ph.D., University of Chicago, 1988.

Prucha, Ingmar R. Professor, Economics. M.A., University of Vienna, 1973; Ph.D., 1977

Pugh, William W. Assistant Professor, Computer Science. B.S., Syracuse University, 1980, Ph.D., Cornell University, 1988.

Pugliese, Rudolph E. Professor, Emeritus, Theatre. B.A., Miami University (Ohio), 1947; M.A., Catholic University of America, 1949; Ph.D., Ohio State University, 1961.

Pugsley, James H. Associate Professor and Associate Chair, Electrical Engineering. A.B., Oberlin College, 1956; M.S., University of Illinois (Urbana), 1958; Ph.D., 1963.

Pumroy, Donald K. Professor Emeritus, Counseling and Personnel Services; Professor, Psychology. B.A., University of Iowa, 1949; M.S., University of Wisconsin, 1951; Ph.D., University of Washington, 1954

Purtilo, James M. Associate Professor, Computer Science. B.A., Hiram University, 1978; M.A., Kent State University, 1980; Ph.D., University of Illinois, 1986.

Quebedeaux, Bruno, Jr. Professor, Horticulture. B.S., Louisiana State University, 1962; M.S., 1963, Ph.D., Cornell University, 1968.

Quester, George H. Professor, Government and Politics. A.B., Columbia College, 1958; M.A., Harvard University, 1964, Ph.D., 1965

Quintiere, James G. Professor, Fire Protection Engineering. B.S., New Jersey Institute of Technology, 1962; M.S., New York University, 1966, Ph.D., 1970.

Rab, Wajeda J. Adjunct Assistant Professor, Horticulture. B.S., Bangladesh University of Engineering & Technology, 1967; M.S., Texas A&M University, 1970.

Rabasa, Jose Assistant Professor, Spanish and Portuguese. B.A., University of the Amencas, 1971; M.A., Universidad Nacional Autonoma de Mexico, 1978; Ph.D., University of California (Santa Cruz), 1985.

Rabenhorst, Martin C. Associate Professor, Agronomy. B.S., University of Maryland, 1975; M.S., 1978; Ph.D., Texas A & M University, 1983.

Rabin, Herbert Director, Engineering Research Center; Associate Dean, College of Engineering; Professor, Electrical Engineering. B.S., University of Wisconsin, 1950; M.S., University of Illinois, 1951; Ph.D., University of Maryland, 1959.

Racusen, Richard H. Associate Professor, Botany. B.S., University of Vermont, 1970; M.S., 1972; Ph.D., 1975.

Radermacher, Reinhard Associate Professor, Mechanical Engineering. B.S., Technical University (Munich), 1974; M.S., 1977; Ph.D., 1981.

Ragan, Robert M. Professor, Civil Engineering. B.S., Virginia Military Institute, 1955; M.S., Massachusetts Institute of Technology, 1959; Ph.D., Cornell University, 1965.

Raina, Ashok Adjunct Professor, Entomology. B.Sc., Jammu & Kashmir University (India), 1961; M.Sc., Aligarh Muslim University (India), 1967; Ph.D., North Dakota State University, 1974.

Ramaty, Reuven Adjunct Professor, Physics. B.S., Tel-Aviv University, 1961; Ph.D., University of California (Los Angeles), 1966.

Ramsey, S. Robert Professor, Hebrew and East Asian. B.C.E., Georgia Institute of Technology, 1966; M.A., Yale University, 1972; M.Phil., 1972; Ph.D., 1975.

Ranald, Ralph A. Associate Professor, Government and Politics. A.B., University of California (Los Angeles), 1952; M.A., 1954; A.M., Princeton University, 1958; Ph.D., 1961.

Rao, Peddada R. Assistant Professor, Mechanical Engineering. B.S., Indian Institute of Technology, 1982; M.S., Washington University (St. Louis), 1985; D.Sc., 1989.

Rapport, Michael S. Visiting Lecturer, Part-time, Physics. B.S., Carnegie-Mellon University, 1967; M.S., University of Maryland, 1972; Ph.D., 1976.

Raschid, Louiqa Assistant Professor, College of Business and Management: Assistant Professor, Information Systems; Assistant Professor, Institute for Advanced Computer Studies. B.T., Indian Institute of Technology, 1980; M.E., University of Florida, 1982; Ph.D., 1987.

Ratner, Nan Bernstein Associate Professor and Chair, Hearing and Speech Sciences. B.A., Jackson College, Tufts University, 1974; M.A., Temple University, 1976; Ed.D., Boston University, 1982.

Rattner, Barnett A. Adjunct Associate Professor, Poultry Science. B.S., University of Maryland, 1972; M.S., 1974; Ph.D., 1977.

Raupp, Michael Professor, Entomology. B.S., Cook College, Rutgers University, 1975; M.S., Rutgers University, 1977; Ph.D., University of Maryland, 1981.

Ray, Sangeeta Assistant Professor, English. B.A., University of Calcutta, 1980; M.A., 1983; M.A., Miami University, 1987; Ph.D., University of Washington, 1990.

Read, Merrill S. Professor and Chairman, Human Nutrition and Food Systems. B.S., Northwestern University, 1949; M.S., Ohio State University, 1951; Ph.D., 1956.

Reaka-Kudla, Marjorie L. Professor, Zoology. B.A., University of Kansas, 1965; M.S., 1969; Ph.D., University of California (Berkeley), 1975.

Rearick, William R. Professor, Art History. B.A., New York University, 1953; M.A., 1955, Ph.D., Harvard University, 1968.

Redish, Edward F. Professor, Physics. A.B., Princeton University, 1963, Ph.D., Massachusetts Institute of Technology, 1968.

Reeves, Mavis M. Professor, Government and Politics. B.A., West Virginia University, 1942; M.A., 1943; Ph.D., University of North Carolina, 1947.

Regan, Frank Lecturer, Part-time, Aerospace Engineering. B.S., Massachusetts Institute of Technology, 1957; M.S., 1958.

Regan, Thomas M. Professor, Chemical Engineering. B.S., Tulane University, 1963; Ph.D., 1967.

Reggia, James A. Associate Professor, Computer Science. B.S., University of Maryland, 1971, M.D., 1975; Ph.D., 1981.

Regier, Jerome C. Associate Professor, Entomology. B.A., Harvard University, 1969; Ph.D., 1975.

Reinhold, F. Donald Assistant to the Dean, Summer Programs. B. Mus., Bucknell University, 1974; M.A., University of North Carolina, 1980.

Reiser, Martin P. Professor, Electrical Engineering; Professor, Laboratory for Plasma Research. M.S., Johannes Gutenberg Universitat (Mainz, Germany), 1957; Ph.D., 1960.

Reiser, Sheldon Adjunct Professor, Part-time, Human Nutrition and Food Systems. B.S., City College of New York, 1953; M.S., University of Wisconsin, 1957; Ph.D., 1959.

Restorff, Kathleen A. Visiting Lecturer, Part-time, Physics. B.A., Central Connecticut State College, 1971; M.S., University of Maryland, 1975.

Retallack, Joan R. Lecturer, Part-time, University Honors Program. B.A., University of Illinois (Urbana), 1963; M.A., Georgetown University, 1976.

Reutt-Robey, Janice Assistant Professor, Chemistry and Biochemistry. B.A., Haverford College, 1980; Ph.D., University of California (Berkeley), 1986.

Reveal, James L. Professor, Botany. B.S., Utah State University, 1963; M.S., 1965; Ph.D., Brigham Young University, 1969.

Rey, Georges Associate Professor, Philosophy. B.A., University of California (Berkeley), 1970; M.A., Harvard University, 1975; Ph.D., 1978.

Rhee, Moon-Jhong Professor, Electrical Engineering; Professor, Laboratory for Plasma Research. B.S., Seoul University, 1958; M.S., 1960; Ph.D., Catholic University of America, 1970.

Rhodes, Charles C. Instructor, College of Journalism. B.S., University of Maryland, 1984.

Rhyne, Elisabeth Lecturer, part-time, School of Public Affairs. B.A., Stanford University, 1976; M.P.P., Kennedy School of Government, Harvard University, 1980; Ph.D., Harvard University, 1985.

Rib, Harold Senior Research Associate, Civil Engineering. B.C.E., City College of New York, 1953; M.S., Cornell University, 1957; Ph.D., Purdue University, 1967.

Ricart, Glenn Affiliate Associate Professor, Computer Science; Director, Computer Science Center. B.S., Case Institute of Technology, 1967; M.S., Case Western Reserve University, 1971; Ph.D., University of Maryland, 1980.

Richard, Jean-Paul Professor, Physics. B.A., Universite Laval, 1956; B.S., 1960; Ph.D., University of Paris, 1963.

Richardson, William C. Associate Professor, Art. B.F.A., University of North Carolina, 1975, M.F.A., Washington University (St. Louis), 1977

Richter, Karen J. Lecturer, part-time, Mechanical Engineering. B.S., Knox College, 1971; M.S., University of Wisconsin (Madison), 1979; Ph.D., 1987

Richter, Simon J. Assistant Professor, Germanic and Slavic Languages and Literatures. B.A., University of Georgia, 1981; M.A., University of Toronto, 1983, Ph.D., The Johns Hopkins University, 1990.

Ridgway, Whitman H. Associate Professor, History. A.B., Kenyon College, 1963; M.A., San Francisco State College, 1967; Ph.D., University of Pennsylvania, 1973.

Ridky, Robert W. Associate Professor, Geology. B.S., State University of New York (Cortland), 1966, M.S., Syracuse University, 1970; Ph.D., 1973.

Ripin, Barrett H. Adjunct Professor, Physics. B.S., Rensselaer Polytechnic Institute, 1964; Ph.D., University of Maryland, 1971.

Ritter, Ronald L. Associate Professor, Agronomy. B.S., University of Delaware, 1975; M.S., North Carolina State University, 1977; Ph.D., 1979.

Ritzer, George Professor, Sociology. B.A., City College of New York, 1962; M.A., University of Michigan, 1964; Ph.D., Cornell University, 1968.

Rivera, William M. Associate Professor, Agricultural and Extension Education. B.A., University of North Carolina, 1955; M.A., American University, 1959; Ph.D., Syracuse University, 1974.

Robb, Frank T. Associate Professor, Microbiology; Associate Professor, MEES Program. B.S., University of Cape Town, 1968; Honors Degree, 1969; Ph.D., University of California (Riverside), 1973.

Roberson, Bob S. Professor, Microbiology. B.A., University North Carolina, 1951; Ph.D., 1960.

Roberts, Eugene Professor, College of Journalism. B.A., University of North Carolina, 1954; Hon. Doc. of Laws, Colby College, 1989.

Robertson, Carol E. Associate Professor, Music. B.S., Indiana University, 1970; M.A., 1972; Ph.D., 1975.

Robertson, Jack Lecturer, Part-time, College of Library and Information Services. B.A., College of Wooster, 1970; A.M.L.S., University of Michigan, 1973; M.A., 1977.

Robertson, Janet H. Assistant to the Dean, College of Computer, Mathematical and Physical Sciences. B.S., University of Maryland, 1974; M.M., 1979.

Robertson-Tchabo, Elizabeth A. Associate Professor, Human Development. B.A., University of Calgary, 1966; M.Sc., 1967; Ph.D., University of Southern California, 1972.

Robinson, Eugene S. Instructor, Comparative Literature. B.A., University of Maryland, 1973; M.A., 1975; Ph.D., 1984.

Robinson, James A. Associate Professor, English. B.A., Kenyon College, 1967; M.A., University of Pennsylvania, 1968; Ph.D., Duke University, 1975.

Robinson, John P. Professor, Sociology. B.A., University of Toronto (St. Michael's College), 1957; M.S., Virginia Polytechnic Institute, 1959; M.S., University of Michigan, 1963; Ph.D, 1965.

Robock, Alan Associate Professor, Meteorology. B.A., University of Wisconsin (Madison), 1970; S.M., Massachusetts Institute of Technology, 1974; Ph.D., 1977.

Roche, James Assistant Professor, College of Journalism. B.S., Southern Illinois University, 1979; M.A., Marquette University, 1982; Ph.D., Indiana University, 1988.

Roderick, George Assistant Professor, Entomology. A.B., Dartmouth College, 1981; Ph.D., University of California (Berkeley), 1987.

Roderick, Jessie A. Professor, Curriculum and Instruction. B.S., Wilkes College, 1956; M.A., Columbia University, 1957; Ed.D., Temple University, 1967.

Rodriguez, Santiago Associate Professor, Music. B.M., University of Texas, 1973; M.M., Julliard School of Music, 1975.

Roeder, Lois M. Associate Professor, Nutritional Sciences Program. Sc.D., Johns Hopkins University, 1971.

Rogers, Marc A. Assistant Professor, Kinesiology. B.S., State University of New York (Cortland), 1976; M.Ed., University of Nevada (Las Vegas), 1979; Ph.D., University of Minnesota, 1984

Rohrlich, David Professor, Mathematics. B.A., Haverford College, 1972; Ph.D., Yale University, 1976.

Roos, Philip G. Professor, Physics. B.A., Ohio Wesleyan University, 1960; Ph.D., Massachusetts Institute of Technology, 1964.

Rose, William K. Professor, Astronomy. A.B., Columbia University, 1957; Ph.D., 1963.

Rosen, Meriam Professor, Dance. B.A., University of Illinois, 1948; M.A., University of Maryland, 1965.

Rosenberg, Jonathan M. Professor, Mathematics. A.B., Harvard College, 1972; Math. Tripos, Pt. III, University of Cambridge (England), 1973; Ph.D., University of California (Berkeley), 1976.

Rosenberg, Theodore J. Research Professor, Institute for Physical Science and Technology. B.E.E., City University of New York (City College), 1960; Ph.D., University of California (Berkeley), 1965.

Rosenfeld, Azriel Director and Professor, Center for Automation Research. B.A., Yeshiva University, 1950; M.A., Columbia University, 1951; Ordination, Yeshiva University, 1952; M.H.L., 1953; M.S., 1954; D.H.L., 1955; Ph.D., Columbia University, 1957.

Rosenfelt, Deborah Professor, Women's Studies. B.A., Goucher College, 1964; M.A., Columbia University, 1965; Ph.D., University of California (Los Angeles), 1972.

Rosenfield, Sylvia Professor and Chair, Counseling and Personnel Services. B.A., Cornell University, 1960; M.A., University of Illinois, 1961; Ph.D., University of Wisconsin, 1967.

Ross, David S. Associate Professor, Agricultural Engineering. B.S., Pennsylvania State University, 1969; M.S., 1971; Ph.D., 1973.

Ross, Peggy Lecturer, Part-time, Agricultural and Extension Education. B.S., Mississippi State University, 1958; M.A., 1968; Ph.D., Ohio State University, 1982.

Roth, Froma P. Associate Professor, Hearing and Speech Sciences. B.A., Hunter College, 1970; M.A., Queens College, 1972; Ph.D., 1980.

Roush, Marvin L. Professor, Materials and Nuclear Engineering. B.Sc., Ottawa University, 1956; Ph.D., University of Maryland, 1964.

Roussopoulos, Nicholas Professor, Computer Science. B.A., University of Athens (Greece), 1969; M.S., University of Toronto, 1973, Ph.D., 1977.

Rowland, Leslie Assistant Professor, History B.A., Texas Christian University, 1968; M.A., University of Rochester, 1970; Ph.D., 1991.

Roytburd, Alexander Professor, Engineering Materials M.D., Moscow Institute for Steel and Alloys, 1956; Ph.D., Academy of Science (USSR), 1962; Doc.Sc., 1972.

Rozenblit, Marsha L. Associate Professor, History B.A., Barnard College, 1971, M.A., Columbia University, 1974; M.Phil., 1975; Ph.D., 1980.

Rubin, Roger H. Associate Professor, Family and Community Development; Director, Family Research Center. B.A., City University of New York (Brooklyn College), 1965; M.S., Pennsylvania State University, 1966; Ph.D., 1970.

Rudolph, Daniel J. Professor, Mathematics. B.S., California Institute of Technology, 1972; M.S., Stanford University, 1973; Ph.D., 1975.

Ruppert, John H. Assistant Professor, Art. B.A., Miami University (Ohio), 1974; M.F.A., Rochester Institute of Technology, 1977.

Russek-Cohen, Estelle Associate Professor, Animal Sciences. B.S., State University of New York (Stony Brook), 1972; Ph.D., University of Washington, 1979.

Russell, Camille P. Lecturer, French and Italian. Laurea, Padua University (Italy), 1960.

Russell, Charles C. Associate Professor, French and Italian. B.A., Oberlin College, 1956; M.A., Bryn Mawr College, 1964; Ph.D., Harvard University, 1970.

Russell, Horace L. Senior Lecturer, Mechanical Engineering; Assistant Dean, College of Engineering. B.S., Bradley University, 1958; M.S., Air Force Institute of Technology, 1965; Ph.D., Purdue University, 1971.

Russell, James R. Agricultural Marketing Specialist, Maryland Institute for Agriculture and Natural Resources. B.S., Oklahoma State University, 1973; M.S., 1978; Ph.D., Virginia Polytechnic Institute & State University, 1981.

Russell, John D. Professor, English. A.B., Colgate University, 1951; M.A., University of Washington, 1956; Ph.D., Rutgers University, 1959.

Russell, Katheryn K. Assistant Professor, Institute for Criminal Justice and Criminology. B.A., University of California, Berkeley, 1983; J.D., University of California, Hastings, 1986; Ph.D., University of Maryland, 1992.

Rutherford, Charles S. Assistant Professor, English; Associate Dean, College of Arts and Humanities. B.A., Carleton College, 1962; M.A., Indiana University, 1966; Ph.D., 1970.

Ryan, A. Leigh Instructor, English. B.S., Western Connecticut State University, 1965; M.A., University of Maryland, 1974; Ph.D., 1986.

Ryder, Margaret N. Assistant Professor, Kinesiology. B.S., University of North Carolina (Greensboro), 1957; M.A., University of Michigan, 1961; Ph.D., University of Maryland, 1972.

Rymer, Victoria S. Lecturer, College of Business and Management. B.S., University of Maryland, 1961; M.B.A., 1976; Ph.D., 1983.

Earl, Jamesa Sachs, Stephen F. Lecturer and Graduate Director, School of Architecture. B.Arch., Ohio University, 1968.

Saddler-Assem, La Wanda Assistant Director, Center for Minorities in Science and Engineering. B.A., North Carolina Central University, 1973

Sagdeev, Roald Z. Distinguished Professor, Institute for Physical Science and Technology; Distinguished Professor, Physics; Distinguished Professor, Laboratory for Plasma Research. B.S., University of Moscow, 1955; Ph.D., Kurchatov Institute of Atomic Energy, 1960; D.Sc., 1962.

Segoff, Mark Director and Senior Research Scholar, Institute for Philosophy and Public Policy. B.A., Harvard University, 1963; Ph.D., University of Rochester, 1970.

Sahin, Linda M. Instructor, Maryland English Institute. B.A., Indiana University, 1969; M.S., 1971.

Sakellaris, Plutarchos Assistant Professor, Economics. B.A., Brandeis University, 1986; M.A., Yale University, 1988.

Salamanca, Jack H. Professor Emeritus, English. Grad., Royal Academy of Dramatic Art (London), 1952; Dipl., University of London, 1953; Licentiate, Graduate School of Drama (Royal Academy of Music), 1954.

Salamanca-Riba, Lourdes Associate Professor, Materials and Nuclear Engineering. B.S., Universidad Autonoma Metropolitana, 1978, Ph.D., Massachusetts Institute of Technology, 1985.

Salem, Kenneth M. Assistant Professor, Computer Science. B.S., Carnegie Mellon, 1983; M.S., Princeton University, 1984; M.A., 1985; Ph.D., 1988.

Saltz, Joel Associate Professor, Computer Science. B.S., University of Michigan, 1977; M.A., 1978; M.D., Duke University, 1985; Ph.D., 1985.

Salus, Sharon Ridley Instructor, Maryland English Institute. B.A., University of Georgia, 1960; M.A., American University, 1974; A.M.L.S., University of Michigan, 1980.

Samal, Siba K. Assistant Professor, College of Veterinary Medicine. B.V.Sc., Orissa University of Agriculture & Technology, 1976; M.S., Texas A & M University, 1981; Ph.D., Texas A & M. Univ. & Baylor College of Medicine, 1986.

Samet, Hanan Professor, Computer Science. B.S., University of California (Los Angeles), 1970; M.S., Stanford University, 1975; Ph.D., 1975.

Sammons, David J. Professor, Agronomy; Associate Dean, Undergraduate Studies. B.S., Tufts University, 1968; M.A., Harvard University, 1972; Ph.D., University of Illinois, 1978.

Sampugna, Joseph Associate Professor, Chemistry and Biochemistry. B.A., University of Connecticut, 1959; M.A., 1962; Ph.D., 1968.

Sandler, Mark Assistant Professor, Art History. B.A., American University, 1967; M.A., University of Washington, 1971; Ph.D., 1977.

Sanford, Robert J. Professor, Mechanical Engineering B.M.E., George Washington University, 1962; M.S., 1965; Ph.D., Catholic University of America, 1971

Sanjines, Javier Assistant Professor, Spanish and Portuguese. B.A., Universidad de San Andres, Bolivia, 1971; Law Degree, Superior District Court, La Paz Bolivia. 1979; Ph.D., University of Minnesota, 1988.

Santa Maria, D. Laine Associate Professor, Kinesiology. B.A., University of Pennsylvania, 1953; M.Ed., Temple University, 1962; Ed.D., University of Oregon, 1968.

Saracho, Olivia N. Professor, Curriculum and Instruction. B.S., Texas Woman's University, 1967; M.Ed., 1972; Ph.D., University of Illinois, 1978.

Sargent, Stuart H. Associate Professor, Hebrew and East Asian. B.A., University of Oregon, 1968; M.A., Stanford University, 1974; Ph.D., 1977

Sarma, Sankar Das Professor, Physics. B.S., University of Calcutta, 1973; M.S., Brown University, 1976, Ph.D., 1979.

Sather, Jerome O. Associate Professor, Mathematics. B.S., University of Minnesota, 1957; M.S., 1959; Ph.D., 1963.

Sauber, Heidi Winick Director, Cooperative Engineering Education. B.A., The University of Michigan, 1977; M.A., 1978

Sawyer, Robin G. Instructor, Health Education. B.S., George Mason University, 1978, M.Ed., University of Virginia, 1980; Ph.D., University of Maryland, 1990.

Sayre, Clifford L., Jr. Professor, Part-time, Mechanical Engineering. B.S., Duke University, 1947, M.S., Stevens

Institute of Technology, 1950; Ph.D., University of Maryland, 1961

Scales, William R. Associate Professor, Counseling and Personnel Services. B.S.E., Empona State University, 1959; M.S., 1963; Ed.D., Indiana University, 1970.

Scannell, Dale P. Professor, Curriculum and Instruction. B.A., University of Iowa, 1951; M.A., 1955, Ph.D., 1958.

Scerfo, Robert A. Associate Professor, Horticulture. B.S., University of Massachusetts (Amherst), 1969, M.L.A., 1976; Ph.D., Clark University, 1990.

Schafer, James A. Professor, Mathematics. B.S., University of Rochester, 1961; M.S., University of Chicago, 1962; Ph.D., 1965.

Schafer, William D. Associate Professor, Measurement, Statistics, and Evaluation. B.A., University of Rochester, 1964; M.A., 1965; Ed.D., 1969.

Schaeffer, Michael J. Adjunct Lecturer, Health Education. B.S., University of Maryland, 1971; M.A., 1983.

Schales, Franklin D. Associate Professor, Horticulture. B.S., Louisiana State University, 1959; M.S., Cornell University, 1962; Ph.D., 1963.

Schelling, David R. Professor, Civil Engineering. B.S., Lehigh University, 1961; M.S., Drexel Institute of Technology, 1964; Ph.D., University of Maryland, 1968.

Schelling, Thomas Distinguished Professor, Economics. A.B., University of California (Berkeley), 1944; Ph.D., Harvard College, 1951.

Scherage, Carl Assistant Professor, College of Business and Management. B.Sc., Brown University, 1973; M.A., 1975; Ph.D., University of Connecticut (Storrs), 1985.

Schick, Allen S. Professor, School of Public Affairs; Affiliate Professor, Government and Politics. B.A., Brooklyn College, 1956; M.A., Yale University, 1959; Ph.D., 1966.

Schlb, John L. Assistant Professor, English. B.A., Hofstra University, 1973; M.A., 1974; Ph.D., State University of New York (Binghamton), 1978.

Schiraldi, Glenn R. Lecturer, Health Education. B.S., U.S. Military Academy (West Point), 1969; M.S., Brigham Young University, 1976; Ph.D., University of Maryland, 1983.

Schlereťzki, Walter E. Professor Emeritus, Philosophy. A.B., Monmouth College, 1941, M.A., University of Illinois (Urbana), 1942; Ph.D., Cornell University, 1948.

Schlesinger, B. Frank Professor, School of Architecture. B.S., University of Illinois (Urbana), 1950; M. Arch., Harvard Graduate School of Design, 1954.

Schlimme, Donald V. Associate Professor, Horticulture. B.S., University of Maryland, 1956; M.S., 1961; Ph.D., 1964.

Schlossberg, Nancy K. Professor, Counseling and Personnel Services. B.A., Barnard College, 1951; Ed.D., Columbia University, 1961.

Schmeissner, Joanna Assistant Dean, Graduate Studies and Research; Director, Fellowship Office. B.A., Agnes Scott College, 1960; M.A., Yale University, 1962.

Schmidt, Janet A. Affiliate Assistant Professor, Part-time, Counseling and Personnel Services. B.A., Allegheny College, 1975; M.A., Ohio State University, 1977; Ph.D., University of Minnesota, 1983.

Schmidtlein, Frank A. Associate Professor and Acting Chair, Education Policy, Planning, and Administration. B.S., Kansas State University, 1954; M.A., University of California (Berkeley), 1970; Ph.D., 1979.

Schneider, Benjamin Professor, Psychology. B.A., Alfred University, 1960; M.B.A., City University of New York, 1962; Ph.D., University of Maryland, 1967.

Schneider, David I. Associate Professor, Mathematics. A.B., Oberlin College, 1959; Ph.D., Massachusetts Institute of Technology, 1964.

Schoenbaum, Samuel Professor, English. B.A., Brooklyn College, 1947; M.A., Columbia University, 1949; Ph.D., 1953.

Scholnick, Ellin K. Professor, Psychology. A.B., Vassar College, 1958; Ph.D., University of Rochester, 1963.

Schonfeld, Paul M. Associate Professor, Civil Engineering. B.S., Massachusetts Institute of Technology, 1974; M.S., 1974; Ph.D., University of California (Berkeley), 1978.

Schuler, Catherine A. Associate Professor, Theatre. B.A., Eckerd College, 1974; M.A., Emerson College (Boston), 1977; Ph.D., Florida State University, 1984.

Schuma, John Instructor, Part-time, Industrial, Technological and Occupational Education. B.A., Chicago State University, 1964.

Schumacher, Thomas Professor, Music. B.Mus., Manhattan College, 1958; M.S., Juilliard School of Music, 1962.

Schumacher, Thomas L. Professor, School of Architecture. B.Arch., Cornell University, 1963; M.Arch., 1966.

Schwab, Robert Associate Professor, Economics. B.A., Grinnell College, 1969; M.A., University of North Carolina, 1971; Ph.D., Johns Hopkins University, 1980.

Schwartz, Charles W. Associate Professor, Civil Engineering. B.S.C.E., Massachusetts Institute of Technology, 1974; M.S.C.E., 1977; Ph.D., 1979.

Schwartz, Shirley Faculty Research Assistant, Special Education. B.S., Temple University, 1966; M.Ed., University of Maryland, 1983.

Scott, Robert E. Assistant Professor, College of Business and Management. B.S., Washington University (St. Louis), 1975; Ph.D., University of California (Berkeley), 1989.

Scott, Thomas W. Associate Professor, Entomology. B.S., Bowling Green State University, 1973; M.S., 1977; Ph.D., Pennsylvania State University, 1981.

Sebens, Kenneth Professor, Zoology; Director, Marine, Estuarine, Environmental Sciences Program. B.S., University of Connecticut (Storrs), 1972; Ph.D., University of Washington (Seattle), 1977.

Sedlacek, William Associate Professor, Counseling and Personnel Services; Assistant Director, Counseling Center. B.S., Iowa State University, 1960; M.S., 1961; Ph.D., Kansas State University, 1966.

Seefeldt, Carol A. Professor, Human Development. B.A., University of Wisconsin, 1956; M.A., University of South Florida, 1968; Ph.D., Florida State University, 1971.

Segal, David R. Professor, Sociology; Affiliate Professor, Government and Politics. B.A., Harpur College, 1962; M.A., University of Chicago, 1964; Ph.D., 1967.

Segal, Jerome Research Scholar, Institute for Philosophy and Public Policy. B.A., The City College of New York, 1964; M.A., University of Michigan, 1966; Ph.D., 1975; M.P.A., University of Minnesota, 1979.

Segal, Mady W. Professor, Sociology. B.A., City University of New York (Queens College), 1965; M.A., University of Chicago, 1967; Ph.D., 1973.

Segovia, Antonio V. Associate Professor, Geology. B.S., Colorado School of Mines, 1956; Ph.D., Pennsylvania State University, 1963.

Seibel, Ronald J. B.S., University of Illinois, (Urbana), 1957; M.S., 1958; Ph.D., University of Maryland, 1972.

Seidel, John L. Assistant Professor, Anthropology B.A., Drew University, 1976; M.A., University of Pennsylvania, 1980; M.A., 1981; Ph.D., 1987.

Seigel, Arnold E. Director, Instructional Television. B.S., University of Maryland, 1944; M.S., Massachusetts Institute of Technology, 1947, Ph.D., University of Amsterdam (The Netherlands), 1952.

Selden, Steven Associate Professor, Education Policy, Planning, and Administration. B.S. State University of New York (Oswego), 1963; M.S., Brooklyn College, 1967; M.A., Columbia University, 1970; Ed.D., 1971.

Sellis, Timoleon K. Associate Professor, Computer Science. B.Sc., National Technical University of Athens, 1982; M.Sc., Harvard University, 1983; Ph.D., University of California, 1986.

Sen, Arijit Assistant Professor, Economics. B.Sc.,, Presidency College (Calcutta), 1984; M.A., Delhi School of Economics, 1987; Ph.D., Princeton University.

Senbet, Lemma W. Professor, College of Business and Management. B.B.A., Haile Selassi I University, 1970; M.B.A., University of California (Los Angeles), 1972; Ph.D., University of Buffalo, 1975.

Sengers, Jan V. Professor, Institute for Physical Science and Technology. B.Sc., University of Amsterdam, 1952; Ph.D., 1962.

Sengupta, Sanjit Assistant Professor, College of Business and Management. B.T., Indian Institute of Technology, 1980; M.M.S., University of Bombay, 1982; Ph.D., University of California (Berkeley), 1990.

Serwer, Howard Professor, Music. A.B., Yale University, 1949; Ph.D., 1969.

Seshadri, Sudhindra Assistant Professor, College of Business and Management. B.Tech., Indian Institute of Technology, 1976; Ph.D., Pennsylvania State University, 1988.

Sewell, Winifred Lecturer Part-time, College of Library and Information Services. B.A., State College of Washington, 1938; B.S. (L.S.), Columbia University, 1940; D.Sc. (Hono), Philadelphia College of Pharmacy and Science, 1979.

Sham, Foon Assistant Professor, Art. B.F.A., California College of Arts and Crafts, 1978; M.F.A., Virginia Commonwealth University, 1981.

Shamma, Shihab Associate Professor, Electrical Engineering; Associate Professor, Institute for Systems Research. B.S., Imperial College, 1976; M.S., Stanford University, 1977; M.A., 1980; Ph.D., 1980.

Shankar, A. Udaya Associate Professor, Computer Science; Director, Graduate Studies. B. Tech, Indian Institute for Technology, 1976; M.S., Syracuse University, 1978; Ph.D., University of Texas (Austin), 1982.

Shapiro, Nancy Instructor, English. B.A., Brandeis University, 1969; M.Ed., University of Delaware, 1972; Ph.D., University of Maryland, 1984.

Shapour, Azarm Associate Professor, Mechanical Engineering. B.S., University of Toronto, 1977; M.S., George Washington University, 1979; Ph.D., University of Michigan, 1984.

Shaw, Lorna Le'Anne Assistant Professor, Speech Communication. B.A., University of the West Indies, Mona, 1983; M.Ph., 1986; Ph.D., Howard University, 1991.

Shayman, Mark Allen Associate Professor, Electrical Engineering; Associate Professor, Institute for Systems Research. B.A., Yale University, 1975; S.M., Harvard University, 1977; Ph.D., 1981.

Shehata, Talaat E. Associate Professor, Food Science; Director, Office of International Programs, College of Life Sciences. B.A., University of Cairo, 1962; Ph.D., University of California (Davis), 1969.

Sheldon, Anne L. Lecturer, Part-time, College of Library and Information Services. B.A., Swathmore College, 1967; M.L.S., University of Maryland, 1973.

Shelton, Harvey W. Affiliate Assistant Professor, Agricultural and Extension Education. B.S., Virginia State College, 1960; M.Ed., North Carolina State University, 1969; Ed.D., Virginia Polytechnic Institute & State University , 1976.

Sherman, Alan Assistant Professor, Computer Science-UMBC. Sc.B., Brown University, 1978; S.M., Massachusetts Institute of Technology, 1981; Ph.D., 1987.

Sherman, Lawrence W. Professor, Institute of Criminal Justice and Criminology. B.A., Denison University, 1970; M.A., University of Chicago, 1970; M.A., Yale University, 1974; Ph.D., 1976.

Shih, Tien-Mo Associate Professor, Mechanical Engineering. B.S., National Taiwan University, 1970; M.S., University of Southern California, 1973; Ph.D., University of California (Berkeley), 1977.

Shirey, Steven B. Adjunct Assistant Professor, Geology. B.S., Dartmouth College, 1968; M.S., University of Massachusetts, 1972; Ph.D., State University of New York, Stony Brook, 1984.

Shirmohammadi, Adel Associate Professor, Agricultural Engineering. B.S., University of Rezaeiyeh (Iran), 1974; M.S., University of Nebraska, 1977; Ph.D., North Carolina State University, 1982.

Shneiderman, Ben Professor, Computer Science; Professor, Institute for Systems Research. B.S., City College of New York, 1968; M.S., State University of New York (Stony Brook), 1972; Ph.D., 1973.

Shreeve, Charles A. Professor Emeritus, Part-time, Mechanical Engineering. B.E., Johns Hopkins University, 1935; M.S., University of Maryland, 1943.

Shukla, Jagadish Professor, Meteorology. B.Sc., Banaras Hindu University (India), 1962; M.Sc., 1964; Ph.D., 1971; Sc.D., Massachusetts Institute of Technology, 1976.

Shulman, Holly C. Lecturer, Part-time, University Honors Program. B.A., University of Chicago, 1965; M.A., Columbia University, 1968; Ph.D., University of Maryland at College Park, 1984.

Sidhu, Deepinder Professor, Computer Science-UMBC. B.S., University of Kansas, 1966; M.S., State University of New York, 1973; Ph.D., 1979.

Sies, Mary C. Assistant Professor, American Studies. A.B., Michigan State University, 1974; A.M., University of Michigan, 1977; Ph.D., 1987.

Sigall, Harold F. Professor, Psychology. B.S., City University of New York (City College), 1964; Ph.D., University of Texas, 1968.

Silio, Charles B., Jr. Associate Professor, Electrical Engineering. B.S.E.E., University of Notre Dame, 1965; M.S. E.E., 1967; Ph.D., 1970.

Silverman, Joseph Professor Emeritus, Materials and Nuclear Engineering. B.A., City University of New York (Brooklyn), 1944; M.A., Columbia University, 1948; Ph.D., 1951.

Simon, Julian L. Professor, College of Business and Management. B.A . Harvard University, 1953; M.B.A., University of Chicago, 1959; Ph.D., 1961.

Simpson, Sally S. Assistant Professor, Institute of Criminal Justice and Criminology. B.S., Oregon State University, 1976; M.A., Washington State University, 1978, Ph.D., University of Massachusetts (Amherst), 1985.

Sims, Henry P., Jr. Professor, College of Business and Management. B.S., Purdue University, 1961, M.B.A., University of Detroit, 1967; Ph.D., Michigan State University, 1971.

Sims, Laura S. B.S., Pennsylvania State University, 1965; M.P.H., University of Michigan, 1967; Ph.D., Michigan State University, 1971.

Sirkis, James S. Assistant Professor, Mechanical Engineering. B.S., University of Florida, 1984; M.S., 1985; Ph.D., 1988.

Sisler, Hugh D. Professor Emeritus, Botany. B.S., University of Maryland, 1949; M.S., 1951; Ph.D., 1953.

Skiff, Frederick N. Assistant Professor, Physics; Assistant Professor, Laboratory for Plasma Research. B.S., Cornell University, 1979; Ph.D., Princeton University, 1985.

Skuja, Andris Professor, Physics. B.Sc., University of Toronto, 1966; Ph.D., University of California (Berkeley), 1972.

Slater, Mary C. Lecturer (Part time), Dance. B.S., University of Maryland, 1977.

Slater, Susanne V. Lecturer, School of Public Affairs. B.A., Smith College, 1975; M.B.A., Cornell Graduate School of Management, 1979.

Slater, Wayne H. Associate Professor, Curriculum and Instruction. B.S., University of Minnesota (Duluth), 1967; M.A., 1972; Ph.D., University of Minnesota (Minneapolis), 1982.

Slaughter, Leon H. Assistant Professor, Agronomy. B.S., Howard University, 1973; M.S., 1975; Ph.D., University of Maryland, 1987.

Slawsky, Milton M. Visiting Lecturer, Part-time, Physics. B.S., Rensselaer Polytechnic Institute, 1933; M.S., California Institute of Technology, 1935; Ph.D., University of Michigan, 1938.

Slawsky, Zaka I. Professor, Part-time, Physics. B.S., Rensselaer Polytechnic Institute, 1933; M.S., California Institute of Technology, 1935; Ph.D., University of Michigan, 1938.

Sloan, Muriel R. Professor, Kinesiology. B.A., Hunter College (New York), 1947; M.A., Teachers College, Colombia University, 1948; Ph.D., University of Wisconsin, 1958.

Slote, Michael Professor and Acting Chair, Philosophy. A.B., Harvard College, 1961; Ph.D., Harvard University, 1965.

Slud, Eric V. Professor, Mathematics. B.A., Harvard College, 1972; Ph.D., Massachusetts Institute of Technology, 1976.

Small, Eugene B. Associate Professor, Zoology. B.A., Wayne State University, 1953; M.S., 1958; Ph.D., University of California (Los Angeles), 1964.

Smead, Edwin H. Lecturer, Part-time, University Honors Program. B.A., University of Maryland at College Park, 1970; M.A., 1972; Ph.D., 1979.

Smith, Ann C. Instructor, Microbiology. B.A., College of Wooster (Ohio), 1977; M.S., University of Rochester, 1982; Ph.D., 1982.

Smith, Barry D. Professor and Acting Chair, Psychology B.S., Pennsylvania State University, 1962; M.A., Bucknell University, 1964; Ph.D., University of Massachusetts, 1967.

Smith, Betty F. Professor and Chairman, Textiles and Consumer Economics. B.S., University of Arkansas, 1951; M.S., University of Tennessee, 1956; Ph.D., University of Minnesota, 1960; Ph.D., 1965.

Smith, Carl A. Associate Professor, Computer Science. B.S., University of Vermont, 1972; M.S., State University of New York (Buffalo), 1975; Ph.D., 1979.

Smith, Douglas A. Professor, Institute of Criminal Justice and Criminology. A.B., Florida Atlantic University, 1978; A.M., Indiana University, 1980; Ph.D., 1982.

Smith, Elbert B. Professor Emeritus, History. A.B., Maryville College, 1940; A.M., University of Chicago, 1947; Ph.D., 1949.

Smith, Georgia R. Anstine Lecturer, Part-time, Music. B.A., Dickinson College, 1978, M.M., Peabody Conservatory, 1979.

Smith, Gregory C. Assistant Professor, Human Development. B.A., State University of New York (Brockport), 1973, M.A., Villanova University, 1979; Ed.D., University of Rochester, 1983

Smith, James L. Director and Professor, Bureau of Business and Economic Research. B.S., University of Illinois, 1972; M.A., Harvard University, 1976; Ph.D., 1977.

Smith, Kenneth G. Associate Professor, College of Business and Management. B.S., University of Rhode Island, 1970; M.B.A., 1972; Ph.D., University of Washington, 1983

Smith, Martha Associate Professor, English. B.A., Livingston College (Rutgers University), 1977; M.A., Rutgers University, 1982; Ph.D., 1985.

Smith, Michael V. Assistant Professor, College of Journalism. A.M . University of Chicago, 1980; Ph.D., University of Michigan, 1986.

Smith, Mildred F. Professor, Agricultural and Extension Education. B.S., Mississippi State University, 1964, M.Ed., University of Florida, 1967; Ph.D , University of Maryland, 1978.

Smith, Paul J. Associate Professor, Mathematics. B.S., Drexel Institute of Technology, 1965; M.S., Case-Western Reserve University, 1967; Ph.D., 1969.

Smith, Theodore G. Professor, Chemical Engineering. B.E.S., John Hopkins University, 1956; M.E.S., 1958; D.Sc., Washington University, 1960.

Smith-Gill Sandra J. Adjunct Professor, Zoology. B.S., University of Michigan, 1965; M.S., 1966; Ph.D., 1971.

Snow, George A. Professor, Emeritus, Physics. B.S., City University of New York (City College), 1945; M.A., Princeton University, 1947; Ph.D., 1949.

Snyder, David B. Associate Professor, College of Veterinary Medicine. B.S., University of West Virginia, 1975; M.S., University of Maryland, 1978, Ph.D., 1983.

Soares, Joseph H. Jr. Professor, Animal Sciences; Professor, Poultry Science. B.S., University of Maryland. 1964; M.S., 1966; Ph.D., 1969.

Soberon-Ferrer, Horacio Assistant Professor, Textiles and Consumer Economics. Licentiature, University of Mexico, 1975; M.S., Clemson University, 1980; Ph.D., 1986.

Soergel, Dagobert Professor, College of Library and Information Services. B.S., University of Freiburg, 1960; M.S., 1964, Ph.D., 1967.

Solomon, Martha M. Professor, Speech Communication; Acting Associate Dean, College of Arts and Humanities. B.A., Rice University, 1964, M.A., University of Texas (Austin), 1966; Ph.D., 1969.

Solomos, Theophanes Professor, Horticulture. B.S., Athens College of Agriculture (Greece), 1956; M.S., 1957; Ph.D., Cambridge University (England), 1963

Solow, Max Lecturer, Part-time, Physics. B.E.E.E., George Washington University, 1943, M.S., 1950, Ph.D., Catholic University, 1957

Soltan, Karol E. Associate Professor, Government and Politics. B.A., Harvard University, 1972, M.A., University of Chicago, 1978, M.A . 1981, Ph.D., 1982

Sorensen, Sorena S. Adjunct Professor, Geology. B.A Pomona College, 1978. Ph.D., University of California (Los Angeles), 1984

Sorokin, Constentine A. Research Professor Emeritus. Botany A.B., Don Institute, 1927, M.A., Academy of Sciences (Moscow), 1936; Ph D., University of Texas, 1955

Sosnowski, Saul Professor and Chairman, Spanish and Portuguese. B.A., University of Scranton, 1967; M.A., University of Virginia, 1968, Ph.D., 1970.

Soyer, David Professor, Part-time, Music; Member, Guarnen Quartet.

Spalding, Carol A. Instructor, Zoology B.S., Gordon College, 1964; M.S., University of Maryland, 1970.

Sparks, Richmond L. Associate Professor, Music. B.M.E., Illinois State University, 1977; M M., Arizona State University, 1984.

Sparling, Donald W. Adjunct Associate Professor, Poultry Science. B.S., Southern Illinois University, 1971; M.S., 1974; Ph.D., University of North Dakota, 1979.

Spear, Marilyn G. Instructor, Industrial, Technological and Occupational Education. B.A., University of Northern Colorado (Greeley), 1961.

Spear, Robert J. Lecturer, Part-time, College of Business and Management. B.A., University of Notre Dame, 1967; M.S., Georgetown University, 1970.

Speece, Deborah L. Associate Professor, Special Education. B.S., Bowling Green State University, 1974; M.Ed., 1978; Ph.D., University of North Carolina (Chapel Hill), 1984.

Spiegel, Gabrielle M. Professor, History. B.A., Bryn Mawr College, 1964; M.A.T., Harvard University, 1965; M.A., Johns Hopkins University, 1969; Ph.D., 1974.

Spiro, Merle Associate Professor, Art History. B.A., Wilson College, 1955; M.A., Institute of Fine Arts, 1961; Ph.D, 1975.

Spivak, Steven M. Professor, Fire Protection Engineering. B.S., Philadelphia College of Textiles and Science, 1963; M.S., Georgia Institute of Technology, 1965; Ph.D., University of Manchester, 1967.

Splaine, John E. Associate Professor, Education Policy, Planning, and Administration. B.A.,University of New Hampshire, 1963; M.A.,1965; Ed.D., Boston University, 1973.

Sprague, Marsha W. Instructor, Maryland English Institute. B.A., Lake Erie College, 1973; M.A., University of Minnesota, 1981.

Ssemakula, Emmanuel Assistant Professor, Mechanical Engineering. B.S., University of Manchester, 1980; M.S., 1981; Ph.D., 1984.

Stairs, Allen Associate Professor, Philosophy. B.A., University of New Brunswick, 1973; M.A., University of Western Ontario, 1975; Ph.D., 1978.

Staley, Gregory A. Associate Professor, Classics. B.A., Dickinson College, 1970; M.A., Princeton University, 1973; Ph.D., 1975.

Stangor, Charles G. Assistant Professor, Psychology. B.A., Beloit College, 1973; M.A., New York University, 1984; Ph.D., 1986.

Stark, Francis C., Jr. Professor Emeritus, Horticulture. B.S., Oklahoma State University, 1940; M.S., University of Maryland, 1941; Ph.D., 1948.

Steel, Donald H. Professor, Kinesiology. B.A., Trenton State College, 1955; M.A., University of Maryland, 1957; Ph.D., Louisiana State University, 1964.

Steele, Robert E. Associate Professor, Psychology. B.A., Morehouse College, 1965; M.Div., Episcopal Theological School, 1968; M.P.H., Yale University, 1971; M.S., 1974; Ph.D., 1975.

Steffian, John Ames Professor, School of Architecture. B. Arch., University of Pennsylvania, 1957; M. Arch., Harvard Graduate School of Design, 1967.

Stehle, Eva Assistant Professor, Classics. B.A., University of Pennsylvania, 1966; Ph.D., University of Cincinnati, 1971.

Stein, Daniel C. Associate Professor, Microbiology B.S., University of Notre Dame, 1977; M.S., University of Rochester, 1981; Ph.D., 1981.

Steiner, Paul W. Professor, Botany. B.A., Gettysburg College, 1964; M.S., Cornell University, 1969; Ph.D., 1976

Steinhardt, Arnold Professor, Part-time, Music; Member, Guarneri Quartet. Artist Diploma, Curtis Institute of Music, 1959.

Steinhauer, Allen L. Professor and Chairman, Entomology. B.S.A., University of Manitoba, 1953; M.S., Oregon State University, 1955; Ph.D., 1958.

Steinman, Robert M. Professor, Psychology. D.D.S., Saint Louis University, 1948; M.A., New School For Social Research, 1962; Ph.D., 1964

Stellmacher, Karl L. Professor Emeritus, Mathematics. Abiturienten, Gymnasium Sundense, 1927; Staats-Examen, University of Gottingen, 1933; Ph.D., 1936.

Stephan, Wolfgang H. Assistant Professor, Zoology. Diploma, University of Erlangen, 1977; Ph.D., University of Konstanz, 1981.

Stephens, Debra L. Assistant Professor, College of Business and Management. B.A., The University of Texas (Austin), 1975; M.A., The University of Chicago, 1981; Ph.D., 1983.

Stephens, E. Robert Professor, Education Policy, Planning, and Administration. B.S., Morningside College, 1952; M.S., Drake University, 1958; Ph.D., University of Iowa, 1966.

Stephenson, Edward H. Affiliate Associate Professor, College of Vetennary Medicine. D.V.M., Texas A & M University, 1961; M.S., University of Wisconsin, 1979; Ph.D., Colorado State University, 1973.

Stepp, Carl S. Associate Professor, College of Journalism. B.A., University of South Carolina, 1970; M.A., 1972.

Stern, Joshua Visiting Lecturer Part-time, Physics. B.S., City College of New York, 1935.

Sternberg, Yaron M. Professor, Civil Engineering. B.S., University of Illinois, 1961; M.S., University of California (Davis), 1963; Ph.D., 1965.

Sternheim, Charles E. Professor, Psychology. B.A., City University of New York (Brooklyn College), 1961; Ph.D., University of Rochester, 1967.

Stevens, Cynthia K. Assistant Professor, College of Business and Management. B.A., Western Washington University, 1982; M.A., Miami University, 1984; Ph.D., University of Washington, 1990.

Stevens, George A. Professor Emeritus, Agricultural and Resource Economics. B.S., Virginia Polytechnic Institute, 1941; Ph.D., University of Maryland, 1957.

Stevens, Milton Lecturer (Part-time), Music. B., Music Oberlin College Conservatory, 1965; M.M., University of Illinois, 1966; D.M.A., Boston University, 1975.

Stewart, Daryl G. Assistant to the Dean, Health Professions Advising, Undergraduate Studies. B.S., Cornell University, 1956; Ph.D., 1959.

Stewart, Gilbert W. Professor, Computer Science; Professor, Institute for Advanced Computer Studies. A.B., University of Tennessee, 1962; Ph.D., 1968.

Stewart, Greig M. Assistant Dean, College of Journalism. B.A., University of Massachusetts (Amherst), 1973; M.A., University of Maryland, 1979; AGS Cert., 1979; Ph.D., American University, 1983.

Stewart, James M. Professor Chemistry and Biochemistry B.A., Western Washington College, 1953, Ph.D., University of Washington, 1958

Stewart, Larry E. Associate Professor and Chairman, Agricultural Engineering. B.S.A.E., West Virginia University, 1960; M.S., 1961; Ph.D., University of Maryland, 1972.

Stewart, Sylvia Associate Vice President, Administrative Affairs. B.A., Berea College, 1968; M.S., Ohio University, 1971; Ed.D., Northern Colorado University, 1977.

Stifel, Peter B. Associate Professor, Geology B.S., Cornell University, 1958; Ph.D., University of Utah, 1964.

Stimpson, Richard Assistant Professor, Counseling and Personnel Services. B.A., State University of New York (Genosee), 1965; M.A., Michigan State University, 1968; Ph.D., 1977.

Stockdale, Donald K. Assistant Professor, College of Business and Management. B.A., Yale College, 1974; B.A., King's College, 1976; J.D., Yale University, 1980

Stocker, Patricia D. Associate Dean, College of Business and Management. B.A., North Dakota State University, 1965; M.B.A., University of Maryland, 1976; D.B.A., University of Colorado (Boulder), 1984

Stone, Clarence Professor, Government and Politics. A.B., University of South Carolina, 1957; M.A., Duke University, 1960; Ph.D., 1963.

Stone, James M. Assistant Professor, Astronomy. B.Sc., (Hons), Queen's University at Kingston, Kingston, Ontario, 1984; M.Sc., 1986; Ph.D., University of Illinois, 1990.

Stough, Kenneth F. Program Coordinator and Associate Professor, Industrial, Technological and Occupational Education. B.S., Millersville State College, 1954; M.Ed., Pennsylvania State University, 1961; Ed.D., University of Maryland, 1969.

Stowasser, Karl Associate Professor, History. Ph.D., University of Muenster, 1966.

Strand, Ivar E. Jr. Professor, Agricultural and Resource Economics. B.A., University of Rochester, 1967; M.A., University of Rhode Island, 1971; Ph.D., 1975.

Straney, David C. Assistant Professor, Botany. B.S., Brown University, 1982; M.S., Yale University, 1984; Ph.D., 1987.

Straszheim, Mahlon R. Professor and Chair, Economics. B.S., Purdue University, 1961; Ph.D., Harvard University, 1965.

Strauch, Gabriele L. Associate Professor, Germanic and Slavic Languages and Literatures. B.A., Saarbrucken (West Germany), 1969; M.A., Southern Illinois University (Carbondale), 1975; Ph.D., University of Wisconsin (Madison), 1984.

Straw, Philip K. Lecturer, Part-time, University Honors Program. B.A., University of Kentucky (Lexington), 1967; M.A., University of Maryland, 1982.

Streett, Theodore P. Instructor, Institute of Applied Agriculture. B.S., University of Maryland, 1973; M.S., 1978.

Strein, William Associate Professor, Counseling and Personnel Services. B.S., Pennsylvania State University, 1970; M.S., 1973; D.Ed., 1979.

Stricklin, W. Ray Associate Professor, Animal Sciences. B.S., University of Tennessee, 1968; M.S., 1972; Ph.D., Pennsylvania State University, 1975.

Striffler, Charles D. Professor, Electrical Engineering; Professor, Laboratory for Plasma Research. B.S.E., University of Michigan, 1961, M.S.E., 1963; Ph.D., 1972.

Strong, Beverly N. Faculty Research Assistant, Special Education. B.S., St. Cloud State University, 1957; M.S., 1968.

Strudler, Alan Research Scholar, Institute for Philosophy and Public Policy. B.A., Johnston College, 1975; M.A., University of California (Riverside), 1977; Ph.D., University of Arizona, 1982; J.D., 1985.

Struna, Nancy L. Affiliate Associate Professor, History; Associate Professor, Kinesiology. B.S., University of Wisconsin, 1972; M.A., University of Maryland, 1975; Ph.D., 1979.

Stuart, William T. Assistant Professor and Assistant Chair, Anthropology. B.A., George Washington University, 1961; Ph.D., University of Oregon, 1971.

Stuck, Garrett Assistant Professor, Mathematics. B.S., Massachusetts Institute of Technology, 1983; M.S., University of Chicago, 1984; Ph.D., 1988.

Stuntz, Calvin F. Professor Emeritus, Chemistry and Biochemistry. B.S., University of Buffalo, 1939, Ph.D., 1947.

Sturtz, Charles F. Vice President, Administrative Affairs. B.A., Wittenberg University, 1958; M.A., Wayne State University, 1961; Ph.D., University of Maryland, 1990.

Sublett, Henry L. Professor, Retired. Curriculum and Instruction. A.B., Duke University, 1951; M.Ed., University of Virginia, 1953; Ed.D., 1959.

Subrahmanian, Venkatramanan S. Assistant Professor, Computer Science. M.Sc., Birla Institute of Technology and Science, 1985; M.S., Syracuse University, 1987; Ph.D., 1989.

Sucher, Joseph Professor, Physics. B.S., Brooklyn College, 1952; Ph.D., Columbia University, 1957.

Sullivan, Denis F. Associate Professor, Industrial, Technological and Occupational Education. A.B., Tufts University, 1966; M.S., Catholic University, 1972; Ph.D., University of North Carolina, 1975.

Sumida, Jon T. Associate Professor, History. B.A., University of California (Santa Cruz), 1971; M.A., University of Chicago, 1974; Ph.D., 1982.

Suppe, F. R. Professor, Philosophy. A.B., University of California (Riverside), 1962; M.A., University of Michigan, 1964; Ph.D., 1967.

Sutherland, Donald M. G. Professor, History. B.A., Carleton University, 1965; M.A., University of Sussex, 1966; Ph.D., University of London, 1974.

Svenonius, Lars Professor, Philosophy. Filosofie Kandidat, Uppsala University, 1950; Filosofie Magister, 1955; Filosofie Licentiat, 1955; Filosofie Doktor, 1960.

Svirbeley, William J. Professor Emeritus, Chemistry and Biochemistry. B.S., Carnegie Institute of Technology, 1931; M.S., 1932; D.Sc., 1935.

Swamy, Anand Assistant Professor, Economics. B.A., University of Delhi, 1983; M.A., Delhi School of Economics; Ph.D., Northwestern University.

Swank, Lowell J. Visiting Lecturer, Part-time, Physics. B.A., University of California (Berkeley), 1960; Ph.D., University of Illinois (Urbana), 1967.

Swartz, Harry J. Associate Professor, Horticulture. B.S., State University of New York (Buffalo), 1973; Ph.D., Cornell University, 1979.

Sweet, Daniel Professor, Mathematics. B.S., Fairleigh Dickinson University, 1965; Ph.D., Brown University, 1969.

Swistak, Piotr Assistant Professor, Government and Politics. M.S., University of Warsaw, 1978; M.A., 1979; M.S., University of Chicago, 1985; Ph.D., 1987.

Syrmos, George Lecturer, Part-time, Electrical Engineering. B.S., University of California (Santa Barbara), 1983; M.S., 1985; Ph.D., University of Maryland, 1990.

Syski, Ryszard Professor, Mathematics. B.S., University of London (Chelsea), 1954, Ph.D., 1960

Sze, Heven Professor, Botany. B.S., National Taiwan University, 1968; M.S., University of California (Davis), 1970; Ph.D., Purdue University, 1975.

Szepesi, Bela Adjunct Associate Professor, Part-time, Human Nutrition and Food Systems. B.A., Albion College (Michigan), 1961; M.S., Colorado State University, 1964, Ph.D., University of California, Davis, 1968.

Szepsi, Bela Adjunct, Human Nutrition and Food Systems.

Taff, Charles A. Professor, Emeritus, College of Business and Management. B.S.C., State University of Iowa, 1937; M.A., 1941; Ph.D., University of Maryland, 1952.

Taleat, Mostafa E. Professor, Mechanical Engineering. B.S., University of Cairo, 1946; M.S., University of Pennsylvania, 1947; Ph.D., 1951.

Tam, Hak P. Assistant Professor, Measurement, Statistics, and Evaluation. B.A., University of California, Berkeley, 1977; M.A., Ohio State University, Columbus, 1985; Ph.D., 1992.

Tanda, Soichi B.S., Hokkaido University, Japan, 1980; M.S., 1982; Ph.D., 1985.

Tarica, Ralph Professor and Chair, French and Italian. B.A., Emory University, 1954; M.A., 1958; Ph.D., Harvard University, 1966.

Tasch, Uri Assistant Professor, Mechanical Engineering. B.S., Technion University (Israel), 1976; M.S., Illinois Institute of Technology, 1978; Ph.D., Massachusetts Institute of Technology, 1983.

Tasker, Frederick Visiting Assistant Professor, Mechanical Engineering (UMBC). B.S., University of Logos (Nigeria), 1982; M.S., University of Maryland, 1986; Ph.D., 1990.

Taylor, Jerome Visiting Associate Professor, Afro-American Studies. B.A., University of Denver, 1961; Ph.D., Indiana University, 1965.

Taylor, Leonard S. Professor, Electrical Engineering. A.B., Harvard University, 1951; M.S., New Mexico State University, 1956; Ph.D., 1960.

Taylor, M. Susan Associate Professor, College of Business and Management. B.A., University of Southern Alabama, 1973; M.S., Iowa State University, 1975; Ph.D., Purdue University, 1978.

Teachman, Jay D. Professor, Sociology. B.A., Western Washington State College, 1974; M.A., University of Chicago, 1976; Ph.D., 1978.

Teague, Gerald V. Assistant Dean for Administration, College of Education. B.A., Barrington College, 1968; M.A., University of Maryland, 1973; Ph.D., 1976.

Teglasi-Golubcow, Hedwig Associate Professor, Counseling and Personnel Services. B.A., Douglass College, 1969; M.A., Temple University, 1971; Ph.D., Holstra University, 1975.

Teramura, Alan H. Professor and Chairman, Botany. B.A., California State University, 1971; M.A., 1973; Ph.D., Duke University, 1978.

Terchek, Mary Instructor, English. B.S., St. Louis University, 1962; M.A., University of Maryland, 1967.

Terchek, Ronald J. Associate Professor, Government and Politics. B.A., University of Chicago, 1958; M.A., 1960; Ph.D., University of Maryland, 1965.

Therrien, Madeleine B. Professor, French and Italian. Licence d'enseignement, University of Paris, Sorbonne (France), 1959; Ph.D., Michigan State University, 1966.

Thirumalai, Devarajan Professor, Chemistry and Biochemistry; Associate Professor, Institute for Physical Science and Technology. M.Sc., Indian Institute of Technology (Kanpur), 1977; Ph.D., University of Minnesota, 1982.

Thomas, Charles A. Adjunct Professor, Agronomy. B.S., University of Kansas City, 1940; M.S., Louisiana State University, 1942; Ph.D., Cornell University, 1948.

Thomas, Owen P. Professor, Poultry Science. B.S., University of Natal, 1954, M.S., 1962; Ph.D., University of Maryland, 1966.

Thomas, Stephen B. Associate Professor, Health Education. B.S., Ohio State University, 1980; M.S., Illinois State University, 1981; Ph.D., Southern Illinois University, 1985.

Thomas, William Affiliate Assistant Professor, Counseling and Personnel Services; Vice President, Student Affairs. B.S., University of Tennessee, 1955, M.S., 1965; Ph.D., Michigan State University, 1970.

Thompson, Christian Adjunct Professor, Entomology. B.S., University of Massachusetts, 1966; Ph.D., 1969.

Thompson, Derek Associate Professor, Geography. B.A., Manchester University, 1960; M.A., 1962; Ph.D., Indiana University, 1969.

Thompson, Owen E. Professor, Meteorology. B.S., University of Missouri, 1961; M.S., 1963; Ph.D., 1966.

Thompson, Robert B. II. Assistant Professor, College of Business and Management. B.S., University of Florida, 1976; Ph.D., 1984.

Thompson, Roger R. Assistant Professor, History. B.A., Stanford University, 1979; M.A., Yale University, 1981; Ph.D., 1985.

Thorne, Barbara Assistant Professor, Entomology. B.A., Brown University, 1972; M.A., Harvard University, 1978; Ph.D., 1983.

Thorpe, James G. Associate Professor, Art. B.A., University of Maryland, 1973; M.F.A., 1975.

Tildon, Jay T. Professor, Nutritional Sciences Program. Ph.D., Johns Hopkins University, 1965.

Tismaneanu, Vladimir Assistant Professor, Government and Politics. B.A., University of Bucharest, 1974; Ph.D., 1980.

Tits, Andre Leon Professor, Electrical Engineering; Professor, Institute for Systems Research. E.E., University of Liege (Belgium), 1974; M.S., University of California (Berkeley), 1979; Ph.D., 1980.

Toll, John S. Professor and Chancellor Emeritus, Physics. B.S., Yale University, 1944; A.M., Princeton University, 1948; Ph.D., 1952.

Tomasetti, James A. Instructor, part-time, Industrial, Technological and Occupational Education. B.S., University of Maryland, 1971, M.A., 1973, Ph.D., 1981

Topeleski, L.D. Timmy Assistant Professor, Mechanical Engineering-UMBC. B.S., Cornell University, 1961, M.E., 1984; M.S., 1986; Ph.D., University of Pennsylvania, 1990.

Torney-Purta, Judith Professor, Human Development. A.B., Stanford University, 1959, M.A., University of Chicago, 1962; Ph.D., 1965.

Tossell, John A. Professor, Chemistry and Biochemistry. B.S., University of Chicago, 1966, M.A., Harvard University, 1967, Ph.D., 1972.

Townshend, John R.G. Professor and Chairman, Geography. B.Sc., University College London, 1967, Ph.D., 1971

Townshend, John R.G. Professor and Chairman, Geography. B.Sc., University of College of London, 1967; Ph.D., University College London, 1971

Traver, Paul P. Professor, Music. B.Mus., Catholic University of America, 1955; M.Mus., 1957; D.M.A., Stanford University, 1967

Tree, Michael Professor, Part-time, Music; Member, Guarneri Quartet. Artist Diploma, Curtis Institute of Music, 1955.

Tretter, Steven A. Associate Professor, Electrical Engineering. B.S., University of Maryland, 1962; M.A., Princeton University, 1964; Ph.D., 1966.

Trickett, Edison J. Professor, Psychology. B.A., Trinity College, 1963. M.A., Ohio State University, 1965; Ph.D., 1967.

Trimble, Virginia L. Visiting Professor, Astronomy. B.S., University of California (Los Angeles), 1962; M.S., California Institute of Technology, 1965; Ph.D., 1968; M.S., Cambridge University, 1969.

Tripathi, Satish K. Professor and Chairman, Computer Science. B.S., Banaras Hindu University, 1968; M.S., 1970; M.S., University of Alberta, 1974; M.S., University of Toronto, 1976; Ph.D., 1979.

Trousdale, Marion S. Professor, English. B.A., University of Michigan, 1951, M.A., University of California (Berkeley), 1955; Ph.D., University of London (England), 1975.

Truitt, Anne Professor Emerita, Art. B.A., Bryn Mawr College, 1943; Doctor of Fine Arts, The Corcoran School of Art, 1985; Doctor of Fine Arts, Kansas City Art Institute, 1987; Doctor of Fine Arts, Saint Mary's College, 1988; Doctor of Fine Arts, Maryland Institute, College of Art, 1991.

Tsai, Lung-Wen Associate Professor, Mechanical Engineering; Associate Professor, Institute for Systems Research. B.S., National Taiwan University, 1967; M.S., State University of New York (Buffalo), 1970; Ph.D., Stanford University, 1973.

Tsui, Chung Y. Assistant Professor, Mechanical Engineering. B.S., University of Hong Kong, 1953; M.S., Purdue University, 1959; Ph.D., 1967.

Turner, Mark Professor, English. B.A., University of California (Berkeley), 1974; M.A., 1978; Ph.D., 1983.

Turner, Thomas R. Associate Professor, Agronomy. B.S., Virginia Polytechnic Institute, 1973; M.S., Pennsylvania State University, 1976; Ph.D., 1980.

Tuthill, Dean F. Professor, Agricultural and Resource Economics. B.S., Cornell University, 1949; M.S., University of Illinois (Urbana), 1954; Ph.D., 1958.

Tyler, Bonnie B. Associate Professor, Human Development. B.A., DePauw University, 1948; M.A., Ohio State University, 1949; Ph.D., 1954.

Tyler, Forrest B. Professor, Psychology. B.A., Depauw University, 1948; M.A., Ohio State University, 1950; Ph.D., 1952.

Tyler, Robert W. Assistant Professor, Kinesiology. A.B., Drury College, 1957; M.S., Pennsylvania State University, 1959; Ph.D., 1969.

Ufema, Kate Assistant Professor, Theatre. B.A., Pennsylvania State University, 1971; M.A., 1974; M.F.A., 1974.

Unal, Haluk Assistant Professor, College of Business and Management. B.A., Istanbul University, 1973; Doctor of Economics, 1976; M.A., Ohio State University, 1981; Ph. D., 1985.

Unger, J. Marshall Professor and Chair, Hebrew and East Asian. A.B., University of Chicago, 1969; M.A., Yale University, 1973; Ph.D., 1975.

Upton, Elaine Assistant Professor, English. B.A., Tennessee Wesleyan College, 1967; M.A., University of Birmingham (England), 1973; Ph.D., Ohio State University, 1983.

Urban, Louise McClelland Associate Professor, Music. B.A., College of Wooster, 1957; M.A., Columbia University, 1959.

Uriagereka, Juan Assistant Professor, Linguistics. B.A., University of Deusto, 1985; M.A., University of Connecticut, 1986; Ph.D., 1988.

Uslaner, Eric M. Professor, Government and Politics. B.A., Brandeis University, 1968; M.A., Indiana University, 1970; Ph.D., 1973.

Vaccaro, Paul Professor, Kinesiology. B.S., University of Massachusetts, 1970; M.A., University of Florida, 1973; Ed.D., 1976.

Vakharia, Vikram N. Assistant Professor, College of Veterinary Medicine. B.S., Bombay University, 1971, M.S., Wichita State University, 1979; Ph.D., University of Kansas, 1983.

Valadez, Joseph J. Assistant Professor, Family and Community Development. B.A., Northwestern University, 1971; Ph.D., University of Lancaster (England), 1978; M.P.H., Harvard School of Public Health, 1984.

Valente, Carmine M. Adjunct Professor, Health Education. B.S., Manhattan College, 1969; M.A., University of Maryland, 1973; Ph.D., 1982.

Van Berkum, Peter B. Adjunct Associate Professor, Agronomy. B.S., Hatfield Polytechnic, 1974; Ph.D., London University, 1978.

Vanderslice, Joseph Professor Emeritus, Chemistry. B.S., Boston College, 1949; Ph.D., Massachusetts Institute of Technology, 1952.

VanderVelden, Lee Assistant Professor, Kinesiology. B.S., University of Wisconsin, 1961; Ph.D., 1971.

Van Egmond, Peter G. Assistant Professor, English. B.A., Mississippi College, 1959; M.A., University of Mississippi, 1961; Ph.D., University of North Carolina, 1966.

Vann, R. Lindley Associate Professor, School of Architecture. B.S. History of Art, University of Texas (Austin), 1968; Ph.D.Arch.Hist., Cornell University, 1976.

Vanneman, Reeve Associate Professor, Sociology. A.B., Cornell University, 1967; Ph.D., Harvard University, 1975.

Vannoy, Donald W. Professor, Civil Engineering. B.S., West Virginia Institute of Technology, 1970; M.S., University of Virginia, 1971; Ph.D., 1975.

VanSiedright, Bruce A. Curriculum and Instruction. B.A., Calvin College, 1976; M.A., Michigan State University, 1982; Ph.D., 1992.

Varner, Mark A. Associate Professor, Animal Sciences. B.S., University of Minnesota, 1975; M.S., Washington State University, 1977; Ph.D., North Carolina State University, 1981.

Veitch, Fletcher P. Professor Emeritus, Chemistry and Biochemistry. B.S., University of Maryland, 1931; M.S., 1933; Ph.D., 1935.

Venit, Marjorie Associate Professor, Art History. B.F.A., San Francisco Art Institute, 1962; M.A., Institute of Fine Arts, New York University, 1976; Ph.D., 1982.

Venkatesan, Thirumulai Professor, Electrical Engineering; Professor, Physics. B.S., Indian Institute of Technology, 1969; M.S., 1971; Ph.D., City University of New York, 1977.

Verdaguer, Pierre Associate Professor, French and Italian. Licence/Maitrise, Sorbonne, Paris III, 1972; Agregation, 1974; Ph.D., University of Virginia, 1980.

Vernekar, Anandu D. Professor, Meteorology. B.Sc.(Hons), University of Poona, 1956; M.Sc., 1959; M.S., University of Michigan, 1963; Ph.D., 1966.

Vietri, Lois T. Lecturer, Government and Politics. A.B., Rosemont College, 1970; M.A., University of Maryland, 1972; Ph.D., 1981.

Vijay, Inder K. Professor, Animal Sciences; Professor and Director, Molecular and Cell Biology. B.S., Panjab University (India), 1961; M.S., University of Saskatchewan, 1966; Ph.D., University of California (Davis), 1971.

Vishkin, Uzi Professor, Electrical Engineering; Professor, Institute for Advanced Computer Studies; Affiliate Professor, Computer Science. B.S., Hebrew University, 1974, M.S., 1975, D.Sc., Technion University (Israel), 1981.

Vitzthum, Richard C. Professor, English. B.A., Amherst College, 1957; M.A.T., Harvard University, 1958, Ph.D., Stanford University, 1963.

Vizzini, Anthony J. Associate Professor, Aerospace Engineering. S.B., Massachusetts Institute of Technology, 1981; S.B , 1982; S M., 1983; Ph.D., 1986.

Vogel, Stuart Associate Professor, Astronomy. B.A., Williams College, 1975; Ph.D., University of California (Berkeley), 1983.

Voll, Mary Associate Professor, Microbiology. B.A., Mount Saint Agnes College, 1955; M.S., Johns Hopkins University, 1961; Ph.D., University of Pennsylvania, 1964

von Kerczek, Christian H. Associate Professor, Mechanical Engineering. B.S., University of Notre Dame, 1963; M.S., 1965; Ph.D., Johns Hopkins University, 1973.

von Petersdorf, Tobias Assistant Professor, Mathematics. Dipl.Math., Technical University of Darmstadt (Germany), 1987; Ph.D., 1989.

Vough, L.R. Associate Professor, Agronomy. B.S., Pennsylvania State University, 1966; M.S., University of Minnesota, 1969; Ph.D., Purdue University, 1972.

Wabeck, Charles J. Professor, Poultry Science. B.S., University of Massachusetts, 1962; M.S., University of New Hampshire, 1964; Ph.D., Purdue University, 1966.

Wachbroit, Robert S. Research Scholar, Institute for Philosophy and Public Policy. B.S., Massachusetts Institute of Technology, 1970; Ph.D., University of California (Berkeley), 1979.

Wagner, Daniel Lecturer, Theatre. B.A., University of Maryland; M.A.

Wagner, Janet Associate Professor, Textiles and Consumer Economics. B.S., Cornell University, 1970; M.A., 1973; Ph.D., Kansas State University, 1982.

Wakefield, John E. Associate Professor, Music. B.Mus., University of Michigan, 1963; M.Mus., 1964.

Waldrop, Robert S. Professor Emeritus, Psychology. B.A., University of Oklahoma, 1934; B.D., McCormick Theological Seminary, 1937; Ph.D., University of Michigan, 1948.

Wali, Alaka Assistant Professor, Anthropology. B.A., Radcliffe College, 1974; Ph.D., Columbia University, 1984.

Walker, Richard E. Associate Professor, Germanic and Slavic Languages and Literatures. B.A., University of West Virginia, 1966; M.A., 1968; Ph.D., University of Chicago, 1973.

Walker, Richard J. Assistant Professor, Geology. B.S., College of William and Mary, 1979; M.S., State University of New York (Stony Brook), 1981; Ph.D., 1984.

Wall, John R. Instructor, part-time, Industrial, Technological and Occupational Education. B.S., University of Maryland, 1981; M.A., Central Michigan University, 1982.

Wallace, James M. Professor, Mechanical Engineering. B.C.E., Georgia Institute of Technology, 1962; M.S., 1964; D. Phil., Oxford University, 1969.

Wallace, Stephen J. Professor, Physics. B.S., Case Institute of Technology, 1961; M.S., University of Washington (Seattle), 1969; Ph.D., 1971.

Wallace, Stuart D. Adjunct Assistant Professor, Horticulture. B.A., Drake University, 1975; B.S., Iowa State University, 1985; M.S.L.A., University of Wisconsin (Madison), 1987; M.S.CE, 1987.

Wallis, John J. Associate Professor, Economics. B.A., University of Washington, 1975; M.A., 1978; Ph.D., 1981.

Walls, Roy S. Instructor, Institute of Applied Agriculture. B.S., University of Maryland, 1975; M.S., 1987.

Wally, Stefan Lecturer, College of Business and Management. B.A./M.A., University of Chicago, 1980; M.B.A., New York University, 1986.

Walsh, Christopher S. Professor, Horticulture. B.A., Middlebury College, 1969; M.S., Cornell University, 1977, Ph.D., 1980.

Walston, Claude E. Professor and Dean, College of Library and Information Services. B.S., University of South Carolina, 1946; M.S., University of Wisconsin, 1950; Ph.D., Ohio State University, 1953.

Walston, William H., Jr. Associate Professor and Associate Chairman, Mechanical Engineering. B.M.E., University of Delaware, 1959; M.S., 1961; Ph.D., 1964.

Walters, Edward H. Instructor, Music. B.A., Peabody Conservatory of Music, 1968; M.A., Catholic University, 1982.

Walters, William B. Professor, Chemistry and Biochemistry. B.S., Kansas State University, 1960; Ph.D., University of Illinois, 1964.

Walton, A. Ronald Associate Professor, Hebrew and East Asian. B.A., University of Texas, 1967; M.A., Cornell University, 1970; Ph.D., 1975.

Wang, Ching-Ping Shih Associate Professor, Physics. B.S., Tung-Hai University, 1969; M.S., Louisiana State University, 1971; Ph.D., 1974.

Wang, Nam S. Assistant Professor, Chemical Engineering. B.S., University of California, 1979; M.S., California Institute of Technology, 1982; Ph.D., 1988.

Wang, Orrin Assistant Professor, English. B.A., Reed College, 1979, M.A., University of Chicago, 1984; Ph.D., 1989.

Wang, Xiaolu Assistant Professor, Mathematics. M.A., Wayne State University, 1981; Ph.D., University of California (Berkeley), 1985.

Wang, Yu (Michael) Assistant Professor, Mechanical Engineering-UMBC. B.S., Xi-an Jiaoton University, 1982; M.S., Pennsylvania State University, 1985; Ph.D., Carnegie-Mellon University, 1989.

Warner, Charles R. Associate Professor, Mathematics. B.A., University of Toronto, 1955; B.S., University of Rochester, 1957; Ph.D., 1962.

Warren, Anne Professor, Dance. B.A., Ohio State University, 1966; M.Ed., Wayne State University, 1969.

Warren, J. Benedict Professor, History. B.A., Duns Scotus College, 1953; M.A., University of New Mexico, 1960; Ph.D., 1963.

Warren, Lawrence. Professor, Dance. B.A., University of California (Los Angeles), 1953; M.A., 1968.

Washburn, Wilcomb E. Adjunct Professor, American Studies. B.A., Dartmouth College, 1948; Ph.D., Harvard University, 1955.

Washington, Lawrence C. Professor, Mathematics. B.A., Johns Hopkins University, 1971; M.A., 1971; Ph.D., Princeton University, 1974.

Washington, Mary Helen Professor, English. B.A., Notre Dame College, 1962; M.A., University of Detroit, 1966; Ph.D., 1976.

Wasserman, David T. Research Scholar, Institute for Philosophy and Public Policy. B.A., Yale University, 1975; M.A., University of North Carolina, 1981; J.D., University of Michigan, 1978.

Wasserman, Paul Professor, College of Library and Information Services. B.B.A., City University of New York (City College), 1948; M.S.L.S., Columbia University, 1949; M.S., 1950; Ph.D., University of Michigan, 1960.

Watson, John C. Assistant Professor, Botany. B.S., Butler University, 1975; Ph.D., Indiana University, 1982.

Weaver, James Instructor, Part-time, Music. B.M., University of Illinois, 1961; B.M., 1962; M.M., 1963.

Weaver, V. Phillips Professor Emeritus, Curriculum and Instruction. A.B., College of William and Mary, 1951; M.Ed., Pennsylvania State University, 1956; Ed.D., 1962.

Weber, Joseph Professor Emeritus, Physics. B.S., United States Naval Academy, 1940; Ph.D., Catholic University of America, 1951.

Weeks, John Professor, Institute for Physical Science and Technology; Professor, Chemistry. B.A., Harvard College, 1965; Ph.D., University of Chicago, 1969.

Weeks, John D. Professor, Chemistry and Biochemistry; Professor, Institute for Physical Science and Technology. B.S., Harvard College, 1965; Ph.D., University of Chicago, 1969.

Weible, Thomas Professor, Curriculum and Instruction. B.S., Virginia Commonwealth University, 1967; M.Ed., Salisbury State University, 1974; Ph.D., University of Iowa, 1976.

Weigand, William A. Professor, Chemical Engineering. B.S., Illinois Institute of Technology, 1962; M.S., 1963; Ph.D., 1968.

Weil, Raymond R. Professor, Agronomy. B.S., Michigan State University, 1970; M.S., Purdue University, 1972; Ph.D., Virginia Polytechnic Institute & State University, 1977.

Weinberg, Amy S. Associate Professor, Linguistics; Associate Professor, Institute for Advanced Computer Studies; Affiliate Associate Professor, Computer Science. B.A., McGill University, 1976; Ph.D., Massachusetts Institute of Technology, 1988.

Weiner, John Professor, Chemistry and Biochemistry. B.S., Pennsylvania State University, 1964; Ph.D., University of Chicago, 1970.

Weiner, Ronald M. Professor, Microbiology. B.S., City University of New York (Brooklyn College), 1964; M.S., Long Island University, 1967; Ph.D., Iowa State University, 1970.

Weinstein, Paul A. Associate Professor, Economics. B.A., College of William and Mary, 1954; M.A., Northwestern University, 1958; Ph.D., 1961.

Weismiller, Richard A. Professor and Acting Chair, Agronomy. B.S., Purdue University, 1964; M.S., 1966; Ph.D., Michigan State University, 1969.

Weiss, Gene A. Associate Professor and Coordinator, Radio, Television and Film. B.A., Brandeis University, 1961; M.A., New York University, 1965; Ph.D., Ohio State University, 1970.

Weiss, Shlomo Assistant Professor, Computer Science-UMBC. B.S., Technion Israel Institute of Technology, 1973; Ph.D., University of Wisconsin, 1984.

Wellford, Charles F. Professor and Director, Institute of Criminal Justice and Criminology. B.A., University of Maryland, 1961; M.A., 1963; Ph.D., University of Pennsylvania, 1969.

Wellisch, Hans W. Professor Emeritus, College of Library and Information Services. M.L.S., University of Maryland, 1972; Ph.D., 1975.

Wells, Veronica A. Assistant Professor, Part-time, Music. B.A., Howard University, 1961; M.A., Wright State University, 1967.

Wellstood, Frederick Assistant Professor, Physics. A.B., University of California (Berkeley), 1979, Ph.D., 1988.

Wemmer, Christen Adjunct Associate Professor, Zoology. B.A., San Francisco State College, 1965; M.A., 1967; Ph.D., University of Maryland, 1972.

Wenhold, James R. Instructor, Kinesiology. B.S., University of Maryland, 1985; M.A., 1987.

Wentzel, Donat G. Professor, Astronomy. B.A., University of Chicago, 1954; B.S., 1955; M.S., 1956; Ph.D., 1960.

Wentzel, Kathryn R. Assistant Professor, Human Development. B.A., University of Minnesota, 1982; Ph.D., Stanford University, 1987.

Werlinich, Carol Ann Instructor, Family and Community Development. B.S., Pennsylvania State University, 1961; M.S., University of Maryland, 1974; Ph.D., 1983.

Wertheimer, Loretta C. Assistant Vice President, Academic Affairs. B.A., Mount Holyoke College, 1957; M.A., University of Maryland, 1976; Ph.D., 1980.

Weske, John R. Professor Emeritus, Mechanical Engineering. Dipl. Ing., Hannover Institute of Technology, 1924; M.S., Harvard University, 1932; Sc. D., 1934.

Westbrook, Franklin Associate Professor, Counseling and Personnel Services; Acting Director, Office of Minority Student Education. B.S., Chicago State University, 1961; M.S., City University of New York, 1969; Ed.D., Indiana University, 1971.

Westerhout, Gart Adjunct Professor, Astronomy. B.S., University of Leiden, 1950; M.S., 1954; Ph.D., 1958.

Westhoff, Dennis C. Professor and Department Chairman, Animal Sciences. B.S., University of Georgia, 1966; M.S., North Carolina State University, 1968; Ph.D., 1970.

Wetzell, Richard Assistant Professor, History. B.A., Swarthmore College, 1984; M.A., Columbia University, 1985; Ph.D., Stanford University, 1991.

Wexler, Richard Associate Professor, Music. B.Mus., University of Michigan, 1963; M.A., New York University, 1969; Ph.D., 1974

Wheaton, Fredrick W. Professor, Agricultural Engineering. B.S.A.E., Michigan State University, 1964; M.S., 1965; Ph.D., Iowa State University, 1969

Wheelock, Arthur K. Professor, Art History. B.A., Williams College, 1965; Ph.D., Harvard University, 1973.

White, Marilyn D. Associate Professor, College of Library and Information Services. B.A., Our Lady of the Lake College, 1962; M.S., University of Wisconsin, 1963, Ph.D., University of Illinois, 1971.

Whitehead, Tony L. Associate Professor and Chair, Anthropology. B.A., Shaw University, 1965; M.S., University of Pittsburgh, 1969; Ph.D., 1976.

Whittemore, E. Reed Professor Emeritus, English. B.A., Yale University, 1941.

Whittington, Leslie Ann Assistant Professor, Textiles and Consumer Economics. B.S., Regis College, 1984, M.A, University of Colorado, 1987; Ph.D., 1989.

Widhelm, William B. Associate Professor, College of Business and Management. B.E.S., Johns Hopkins University, 1959; M.S.E., 1960; M.S.M.S., 1965; Ph.D., 1969.

Wiedel, Joseph W. Professor, Geography. B.A., University of Maryland, 1958; M.A., 1963

Wiedemann, Gregory Lecturer, Part-time, School of Architecture. B.A., Tufts University, 1972. B.S.C.E., 1973; M.Arch., Harvard Graduate School of Design, 1977.

Wigfield, Allan Assistant Professor, Human Development. B.S., University of Illinois, 1974, M.A., 1977; Ph.D., 1982.

Wilbur, June C. Assistant Professor Emerita, Textiles and Consumer Economics. B.S., University of Washington, 1936; M.Ed., 1937; M.S., Syracuse University, 1940.

Wiley, Robert C. Professor, Horticulture. B.S., University of Maryland, 1949; M.S., 1950; Ph.D., Oregon State University, 1953.

Wilkenfeld, Jonathan Professor and Chairman, Government and Politics. B.S., University of Maryland, 1964; M.A., George Washington University, 1966; Ph.D., Indiana University, 1969.

Wilkerson, Thomas D. Research Professor, Institute for Physical Science and Technology. B.S., University of Michigan, 1953; Ph.D., 1962.

Wilkinson, Gerald S. Associate Professor, Zoology. B.S., University of California (Davis), 1977; Ph.D., University of California (San Diego), 1984

Williams, Aubrey W., Jr. Professor, Anthropology. B.A., University of North Carolina, 1955; M.A., 1957; Ph.D., University of Arizona, 1964

Williams, Darrell L. Adjunct Professor, Geography. B.S.., Pennsylvania State University, 1973; M.S.., 1974; Ph.D.., University of Maryland, College Park, 1989.

Williams, Ellen D. Professor, Physics; Professor, Institute for Physical Science and Technology. B.S., Michigan State University, 1976; Ph.D., California Institute of Technology, 1981.

Williams, John D. Research Associate, Mechanical Engineering. B.S., North Carolina State University, 1967; Ph.D., 1978.

Williams, Linda Faye Associate Professor, Government and Politics. B.A., Rice University, 1970; M.A., University of Chicago, 1973; Ph.D., 1977.

Williams, J. Otis Director, Nyumburu Center. B.A., Morgan State University, 1970; M.A., University of Maryland, 1974 .

Williams, Rhonda M. Assistant Professor, Joint Afro-American Studies and Economics. B.A., Harvard-Radcliffe College, 1978; Ph.D., Massachusetts Institute of Technology, 1983.

Williams, Thelma M. Assistant Dean, College of Computer, Mathematical and Physical Sciences. B.A., University of Maryland, 1977; M.A., 1980; Ph.D., 1986.

Williams, William H. Assistant Professor, History. A.B., Washington and Lee University, 1956; M.A., Duke University, 1960; Ph.D., 1965.

Wilner, Benjamin Assistant Professor, Mechanical Engineering. B.S., Tel-Aviv University, 1979; M.S., Harvard University, 1981; Ph.D., 1986.

Wilson, Andrew S. Professor, Astronomy. B.A., Cambridge University, 1969; M.A., 1973; Ph.D., 1973.

Wilson, Francille R. Assistant Professor, Afro-American Studies. B.A., Wellesley College, 1969; M.A.T., Harvard University, 1970; M.A., University of Pennsylvania, 1979; Ph.D., 1988.

Wilson, Laura B. Director, Center on Aging; Professor, Health Education. B.A., Simmons College, 1969; M.A., University of Pennsylvania, 1970; Ph.D., 1974.

Wilson, Mark Associate Professor, Music. A.B., University of California (Los Angeles), 1970; M.S., 1972; Ph.D., 1974.

Wilson, Robert M. Professor Emeritus, Curriculum and Instruction. B.S., California State College (Pennsylvania), 1950; M.S., University of Pittsburgh, 1956; Ed.D., 1960.

Wilson, William G. Librarian/Lecturer, College of Library and Information Services. B.A., Louisiana State University, 1958; A.M.L.S., University of Michigan, 1960; M.A., Claremont Graduate School, 1971.

Wiltz, Alcine J. Professor and Chair, Dance. B.A., University of Southwestern Louisiana, 1964; M.F.A., University of Wisconsin, 1967.

Winblade, Roger Lecturer, Aerospace Engineering. B.S., Iowa State College, 1959.

Windle, Robert J. Assistant Professor, College of Business and Management. B.A., College of William and Mary, 1977; M.S., University of Wisconsin (Madison), 1981, Ph.D., 1984.

Winkelmann, Allen E. Associate Professor, Aerospace Engineering. B.S , University of Minnesota, 1965; M.S., University of Maryland, 1967; Ph.D., 1976.

Winkelnkemper, H. E. Associate Professor, Mathematics. B.A., National University of Mexico, 1963; M.A., Princeton University, 1965; Ph.D., 1970.

Winton, Calhoun Professor, English. A.B., University of the South (Sewanee), 1948; M.A., Vanderbilt University, 1950; M.A., Princeton University, 1954; Ph.D., 1955.

Wise, David H. Affiliate Associate Professor, Zoology. B.A., Swarthmore College, 1967; M.S., University of Michigan, 1969; Ph.D., 1974.

Wish, Eric D. Director, Center for Substance Abuse Research. B.S., University of Massachusetts, 1968; Ph.D., Washington University, 1978.

Wisler, Carl E. Instructor, Part-time, Agricultural and Extension Education. A.B., Emporia State University, 1956; M.S., 1957.

Witczak, Matthew W. Professor, Civil Engineering. B.S., Purdue University, 1962; M.S., 1963; Ph.D., 1969.

Withers, Josephine Associate Professor, Art History. B.A., Oberlin College, 1960; M.A., Columbia University, 1965; Ph.D., 1971.

Wolde-Tinsae, Amde M. Professor, Civil Engineering. B.E.S., Johns Hopkins University, 1970; M.S., University of California (Berkeley), 1971; Ph.D., State University of New York (Buffalo), 1976.

Wolfe, Peter Professor, Mathematics. B.S., Saint Lawrence University, 1959; B.S.E.E., Renssalaer Polytechnic Institute, 1959; M.S., Northwestern University, 1961; Ph.D., New York University, 1965.

Wolfe, Stephen J. Instructor, Industrial, Technological and Occupational Education. B.S., California State University (Pennsylvania), 1988; M.Ed., 1989.

Wolniak, Stephen M. Associate Professor, Botany. B.A., State University of New York (Oswego), 1972; M.S., University of Illinois (Urbana), 1974; Ph.D., University of California (Berkeley), 1979.

Wolpert, Scott A. Professor, Mathematics. B.S., Johns Hopkins University, 1972; M.S., Stanford University, 1974; Ph.D., 1976.

Wolvin, Andrew D. Professor and Chair, Speech Communication. B.S., University of Nebraska, 1962; M.A., 1963; Ph.D., Purdue University, 1968.

Wong, Shelley Diane Assistant Professor, Curriculum and Instruction. B.A., University of California (Santa Cruz), 1971; M.A., University of California (Los Angeles), 1986; Ed.D., Teachers College, Columbia University, 1990.

Wong, Tak-Jun Lecturer, College of Business and Management. B.A., Dickinson College, 1984; M.B.A., University of California (Los Angeles), 1986.

Woo, Ching Hung Professor, Physics. B.S., Louisiana Technological Institute, 1958; M.S., University of California (Berkeley), 1960; Ph.D., 1962.

Wood, Francis E. Professor Emeritus, Entomology. B.S., University of Missouri, 1958; M.S., 1962; Ph.D., University of Maryland, 1970.

Woodson, Sarah A. Assistant Professor, Chemistry and Biochemistry. B.S., Kalamazoo College, 1982; Ph.D., Yale University, 1987.

Woodward, Nicholas B. Assistant Research Scientist, Geology. B.A., Cornell University, 1970; M.S., The Johns Hopkins University, 1978; Ph.D., 1981.

Worthington, Colleen K. Instructor, Hearing and Speech Sciences. B.A., University of Maryland, 1979; M.S., Loyola College, 1980.

Wrenn, Jerry P. Associate Professor, Kinesiology; Associate Dean, College of Health and Human Performance. B.S., East Carolina University, 1961; M.S., University of Tennessee, 1963; Ph.D., University of Maryland, 1970.

Wright, Elissa Y. Assistant Dean for Student Affairs, School of Public Affairs. B.A., Yale University, 1983; J.D., Stanford Law School, 1986.

Wright, Neil Thomas Assistant Professor, Mechanical Engineering-UMBC B.S., Virginia Polytechnic Institute & State University , 1981, M.S., University of Colorado (Denver), 1986; Ph.D., University of Pennsylvania, 1990.

Wright, Roberta Y. Lecturer, Part-time, Afro-American Studies. B.A., Fisk University, 1967; J.D., University of Michigan Law School, 1970.

Wright, Winthrop R. Professor, History. B.A., Swarthmore College, 1958; M.A., University of Pennsylvania, 1960; Ph.D., 1964.

Wu, D.S. Research Professor, Institute for Physical Science and Technology. B.S., National Taiwan University, 1954; M.S., Virginia Polytechnic Institute, 1956; Ph.D., Princeton University, 1959.

Wu, Jyh-Yang Assistant Professor, Mathematics. B.S., National Taiwan University, 1984; M.S., University of Chicago, 1987; Ph.D., 1989.

Wuttig, Manfred R. Professor and Acting Chair, Materials and Nuclear Engineering. B.S., Technische Hochschule Dresden, 1955; M.S., 1958; Ph.D., 1962.

Wyatt, David M. Professor, English. B.A., Yale University, 1970; Ph.D., University of California (Berkeley), 1975.

Wylie, Ann G. Professor, Geology. B.S., Wellesley College, 1966; Ph.D., Columbia University, 1972.

Wysong, John W. Professor, Agricultural and Resource Economics. B.S., Cornell University, 1953; M.S., University of Illinois (Urbana), 1954; Ph.D., Cornell University, 1957.

Yager, David D. Affiliate Assistant Professor, Zoology; Assistant Professor, Psychology. B.A., Wesleyan University, 1972; M.A., University of Michigan, 1976; Ph.D., Cornell University, 1989.

Yaginuma, Kazuo Instructor, Hebrew and East Asian. B.A., Ohtemon Gakuin University (Japan), 1973; M.A., University of San Francisco, 1984.

Yakobson, Mikhail Professor, Mathematics. M.A., Moscow State University, 1967; Ph.D., 1970.

Yaney, George L. Professor Emeritus, History. B.E., Rensselaer Polytechnic Institute, 1952; M.A., University of Colorado, 1956; Ph.D., Princeton University, 1961.

Yang, Chia-Hung Assistant Professor, Electrical Engineering. B.A., National Tsing Hua University, 1979; M.S., Princeton University, 1983; Ph.D., 1987.

Yang, Grace L. Professor, Mathematics. B.A., National Taiwan University, 1960; M.A., University of California (Berkeley), 1963; Ph.D., 1966.

Yang, Jackson C.S. Professor, Mechanical Engineering. B.S., University of Maryland, 1958; M.A., 1961; Ph.D., 1963.

Yanta, William Lecturer, Part-time, Aerospace Engineering. B.S., University of Texas, 1962; M.S., Catholic University of America, 1964; Ph.D., 1973.

Yanushevsky, Rafael Visiting Associate Professor, Mechanical Engineering. B.S., Polytechnic Institute of Kiev, 1960; M.S., 1961; Ph.D., Inst of Control Sciences of the USSR Acad of Scien, 1967.

Yao, S. Bing Professor, College of Business and Management. B.S., National Taiwan University, 1968; M.A., Western Michigan University, 1969; Ph.D., University of Michigan, 1974.

Yee, Angelina Assistant Professor, Hebrew and East Asian. B.A., University of California (Berkeley), 1969; M.A., Harvard University, 1971 Ph.D., 1986.

Yeh, Kwan-nan Professor, Textiles and Consumer Economics. B.S., National Taiwan University, 1961; M.S., Tulane University, 1965; Ph.D., University of Georgia, 1970.

Yelser, Gail P. B.S., University of Maryland, 1975; M.S., 1982.

Yeni-Komshian, Grace H. Professor, Hearing and Speech Sciences. B.A., American University of Beirut (Lebanon), 1957; M.S., Cornell University, 1962; Ph.D., McGill University, 1965.

Yesha, Yaacov Associate Professor, Computer Science-UMBC. B.Sc., Tel Aviv University, 1972; M.Sc., Weitzmann Institute of Science, 1975; Ph.D., 1979.

Yorke, James A. Professor, Mathematics; Director, Institute for Physical Science and Technology. A.B., Columbia University, 1963; Ph.D., University of Maryland, 1966.

Young, Edgar P. Professor Emeritus/Instructor, Part-time, Animal Sciences. B.S., Ohio State University, 1954; M.S., 1956; Ph.D., 1958.

Young, H. Peyton Professor, School of Public Affairs. B.A., Harvard University, 1966; Ph.D., University of Michigan, 1970.

Yuan, Robert T. Professor, Microbiology. B.S., Antioch College, 1960; Ph.D., Albert Einstein College, 1966.

Zafiriou, Evanghelos Associate Professor, Chemical Engineering; Associate Professor, Institute for Systems Research. B.S., National Technical University, 1982; Ph.D., California Institute of Technology, 1986.

Zaki, Kawthar Professor, Electrical Engineering. B.S., Ain Shams University (Cairo), 1962; M.S., University of California (Berkeley), 1966; Ph.D., 1969.

Zanot, Eric J. Associate Professor, College of Journalism. B.A., Pennsylvania State University, 1965; M.A., 1970; Ph.D., University of Illinois, 1977.

Zedek, Mishael Professor, Mathematics. M.S., Hebrew University of Jerusalem, 1952; Ph.D., Harvard University, 1956.

Zelkowitz, Marvin M. Professor, Computer Science. B.S., Rensselaer Polytechnic Institute, 1967; M.S., Cornell University, 1969; Ph.D., 1971.

Zen, E-An Adjunct Professor, Geology. B.A., Cornell University, 1951; Ph.D., Harvard University, 1955.

Zerbinos, Eugenia Assistant Professor, College of Journalism. B.A., Michigan State, 1973; M.A., 1981; Ph.D., 1986.

Zhang, Guangming Assistant Professor, Mechanical Engineering; Assistant Professor, Institute for Systems Research. B.S., Tianjin University (PRC), 1966; M.S., 1983; M.S., University of Illinois (Urbana-Champaign), 1983; Ph.D., 1986.

Zhang, Xian-Jie Assistant Professor, Mechanical Engineering. B.S., Beijing University of Iron and Steel Technology, 1965; M.S., 1980; Ph.D., University of Maryland, 1985.

Zhu, Wenbo Assistant Professor, Mechanical Engineering-UMBC. B.S., Shanghi University of Science and Technology, 1982; M.S., Rensselaer Polytechgic Institute, 1984, Ph.D., 1989.

Zilfi, Madeline C. Associate Professor, History. A.B., Mount Holyoke College, 1964. M.A., University of Chicago, 1971; Ph.D., 1976.

Ziotlow, Susan Assistant to the Dean, Graduate Studies and Research. B.A., University of Rochester, 1974. M.A., University of Connecticut, 1977, Ph.D., 1979

Zorn, Gus T. Professor, Physics. B.S., Oklahoma State University, 1948; M.S., University of New Mexico, 1950; Ph.D., University of Padua, 1954.

Zwanzig, Robert W. Professor Ementus, Institute for Physical Science and Technology. B.S., Polytechnic Institute of Brooklyn, 1948; M.S., University of Southern California, 1950; Ph.D., California Institute of Technology, 1952.

CHAPTER 10

APPENDICES

Summary of Policies and Regulations Pertaining to Students

General Summary

Note: Descriptions of these policies are for general information only. Please refer to specific texts for official language. Modifications may be made or other policies may be added throughout the year. Please contact the Office of Judicial Programs for additional information.

In addition to the policies reprinted in their entirety in the appendices, students enrolled at College Park are expected to be aware of, and to abide by, the policies summarized below. Information about where the complete texts may be consulted follows each summary. This information was compiled and provided by the Office of Judicial Programs.

Alcoholic Beverage Policy and Procedures forbid unauthorized possession, use, or distribution of alcoholic beverages on University property. Certain exceptions are specified. (Information subject to change pending legislation. Originally approved by the Board of Regents, September 26, 1969. Legal drinking age in the State of Maryland is 21 years. Reprinted in Student Handbook.)

Policy on Amplifying Equipment restricts the hours and locations of use of certain forms of sound amplifying equipment, provides a procedure for the authorization of otherwise restricted uses of sound amplifying equipment, and locates responsibility for complaints with those using the equipment. (Adopted by the University Senate, June 2, 1970. Reprinted in the Student Handbook.)

Campus Activities Policies regulate reservation of University facilities, advertising, co-sponsorship, cancellation and postponement, and various other matters relating to programs of student organizations. (Published in the Program Planning Handbook for Student Organizations. For more information, contact the Office of Campus Activities.)

Policy on Demonstrations establishes guidelines for demonstrations and picketing. Stipulates that the University will take steps necessary both to protect the right of individuals or groups to demonstrate and to protect the freedom of speech, assembly, and movement of any individual or group. (Adopted by the University Senate, June 2, 1970. Reprinted in the Student Handbook.)

Examination Rules set general standards for student conduct during examinations. They are applicable to all examinations given at the College Park campus unless contrary instructions are provided by the faculty member administering the examination. (Printed on all University examination books. See also Chapter 4 of this catalog.)

Policy on Hazing and Statement on Hazing prohibit hazing, which is defined by the National Interfraternity Conference as "any action taken or situation created, whether on or off the fraternity premises, to produce mental or physical discomfort, embarrassment, harassment, or ridicule. Violations of Section 9 of the Code of Student Conduct, the Maryland State Law on Hazing, and any actions which fit each chapter's National Organization's policy on hazing are also considered hazing. (For more information or copies of various hazing policies, contact the Office of Campus Activities, Assistant Director for Greek Affairs.)

Campus Parking Regulations cover registration, permits, fees, violations, enforcement, fines, towing and impounding, appeals, carpool programs, special events parking, emergency parking, and a number of other areas. Notably, the regulations provide that "[t]he responsibility of finding an authorized parking space rests with the driver" (emphasis added). (Current regulations in effect since July, 1990. An informational guide is distributed to all who register for parking. For more information, contact the Department of Campus Parking.)

Policy Pertaining to Public Displays defines standards for permissible displays, objects or structures not designed to be continuously carried or held by a demonstrator or picketer so as simultaneously to protect freedom of expression and prevent unreasonable threats to the health, safety, security, or mission of the campus. (Approved by the President, March 29, 1989. For more information, contact the Office of the Vice President for Student Affairs.)

Residence Hall Rules define prohibited conduct in and around campus residence halls, buildings, and at Department of Residence Life sponsored activities, in addition to that which falls under the Residence Halls Agreement, Code of Student Conduct, and federal, state and local laws. The rules also specify standard sanctions for rule violations, and provide for an adjudication process. (Reprinted in Community Living, the Resident Life and Dining Services Handbook. For more information, contact the Department of Resident Life.)

Student Organization Registration Guidelines define student organizations, responsibilities of officers, and registration, and establish types of registration, a registration process, certain privileges of registered student organizations in good standing, sanctions which may result from registration review, and guidelines for constitutions. (For more information, or for a copy of the guidelines, contact the Office of Campus Activities, Assistant Director for Policy and Program Development.)

Appendix A: Human Relations Code*

***The Human Relations Code is currently being revised by the Campus Senate to reflect the recent reorganization of the academic units at the University of Maryland at College Park. The following interim procedure is to be in effect until such time as the code is revised by the Campus Senate. For the nondepartmentalized colleges, an assistant vice chancellor shall assume the responsibilities formerly held by the division provost. For the departmentalized colleges, the dean of the college shall assume the responsibilities formerly held by the division provost.**

Article I Purpose

A. The University of Maryland College Park affirms its commitments to a policy of eliminating discrimination on the basis of race, color, creed, sex, sexual orientation, marital status, personal appearance, age, national origin, political affiliation, physical or mental handicap, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution. This code is established to prevent or eradicate such discrimination in accordance with due process within the campus community. In doing so the campus recognizes that it must strive actively and creatively to build a community in which opportunity is equalized.

B. Accordingly, the Campus Senate of The University of Maryland at College Park, establishes this Human Relations Code to:
   1. prohibit discrimination as defined in this document within the College Park campus community both by educational programs and, to the extent specified herein, by a formal grievance procedure;
   2. establish the responsibilities of the Adjunct Committee on Human Relations of the Senate General Committee on Campus Affairs;
   3. establish the responsibilities of the Office of Human Relations Programs in connection with this code;
   4. establish mediation and grievance vehicles within the colleges of the campus, in conformity with the Campus Affirmative Action Plan;
   5. establish the responsibilities of Equal Education and Employment Opportunity (EEEO) Officers.

C. Every effort will be made to make students and potential students, employees and potential employees, faculty members and potential faculty members aware of the opportunities that the campus provides for every individual to develop and utilize his talents and skills. It is the intent of the campus to enhance among its students and employees respect by each person for that person's own race, ethnic background, sex, or sexual orientation as well as appreciation and respect for the race, ethnic background, sex or sexual orientation of other individuals.

D. Development of a positive and productive atmosphere of human relations on the campus shall be encouraged through effective dialogue and broadening of communications channels. The Adjunct Committee on Human Relations and the Office of Human Relations Programs shall provide support and assistance, as authorized, to any individual or group deemed by them to have a positive probable impact in working toward increased understanding among all individuals and groups on the campus.

E. The Senate Adjunct Committee on Human Relations shall advise the Office of Human Relations Programs in recommending policies that fulfill the provisions of this code. In particular:
   1. The Senate Adjunct Committee on Human Relations shall be an adjunct committee of the standing Senate General Committee on Campus Affairs.
   2. The purpose of the Senate Adjunct Committee on Human Relations shall be to foster better human relations among all individuals and groups on the campus, to advise in the development of positive and creative human relations programs, to advise in the prevention and eradication of all forms of discrimination prohibited by this code, and to make regular assessments of the state of human relations within the purview of this campus.
   3. The functions of the Senate Adjunct Committee on Human Relations may include but are not limited to: requesting the Office of Human Relations Programs to conduct investigations of complaints of discrimination because of race, color, creed, sex, sexual orientation, marital status, personal appearance, age, national origin, political affiliation, physical or mental handicap, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution; providing an "open forum" for effective dialogue among all segments of the campus community; recommending to appropriate campus bodies educational programs and activities to promote equal rights and understanding; periodically reviewing such programs and activities; initiating studies of campus-sponsored or recognized programs and activities to determine how improvement can be made in respect to human relations; continually reviewing progress toward these ends and making such further recommendations as experience may show to be needed; and participating to the extent set forth herein in formal human relations grievance actions.

F. There shall be an Office of Human Relations Programs directly responsible to the chancellor. This office shall plan, develop, give direction to and coordinate the overall campus effort to prevent and eliminate discrimination based on race, color, creed, sex, sexual orientation, marital status, personal appearance, age, national origin, political affiliation, physical or mental handicap, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution, in all areas of campus life (this overall effort is referred to herein as the "Human Relations Program"). The office shall represent, and have direct access to, the chancellor, and shall cooperate with the Senate Adjunct Committee on Human Relations on substantive matters concerning human relations. The office shall assist and coordinate the human relations activities of the Equal Employment and Educational Opportunity Officers and the equity officers representing the various units of the campus.

   The duties and responsibilities of the Office of Human Relations Programs shall include but not be limited to the following: working with deans, directors, and department chairs to ensure full compliance, in spirit as well as in letter, with laws relating to discrimination and with the Campus Human Relations Code; advising campus offices in efforts to assist personnel to recognize and take advantage of career opportunities within the campus; working with appropriate offices in the surrounding community on such issues as off-campus housing practices affecting campus students and employees, transportation, etc.; recommending to the Off-Campus Housing Office removal from or reinstatement upon lists of off-campus housing, so as to ensure that listed housing is available on a nondiscriminatory basis. (N.B. any final action taken by the University shall be preceded by proper notice to the property owner involved, and an opportunity to be heard); conducting reviews of compliance with the Campus Affirmative Action Plan; initiating and carrying out programs for the elimination and prevention of racism and sexism on campus; distributing this code and informing the campus community of the interpretations of its provisions; sending periodic reports to the chancellor and to the Senate Adjunct Committee on Human Relations concerning the Human Relations Programs; and participating to the extent set forth herein in formal human relations grievance actions.

G. For each of the colleges of the campus, the Division of Administrative Affairs, and the Division of Student Affairs, there shall be an equity officer, who is designated in accordance with the Affirmative Action Plan and who has the duties specified by the Campus Affirmative Action Plan and like duties with respect to the forms of discrimination prohibited by this code.

Article II Coverage

A. Kinds of Discrimination Prohibited:
   1. Discrimination in employment, job placement, promotion, or other economic benefits on the basis of race, color, creed, sex, sexual orientation, marital status, personal appearance, age, national origin, political affiliation, physical or mental handicap, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution.
   2. Discrimination in criteria of eligibility for access to residence, or for admission to and otherwise in relation to educational, athletic, social, cultural, or other activities of the campus because of race, color, creed, sex, sexual orientation, marital status, personal appearance, age, national origin, political affiliation, physical or mental handicap, or on the basis of the exercise of rights secured by the First Amendment of the United States Constitution.

B. For the purposes of this code, "personal appearance" means the outward appearance of any person, irrespective of sex, with regard to bodily condition or characteristics, manner or style of dress, and manner or style of personal grooming, including, but not limited to, hair style and beards. It shall not relate, however, to the requirement of cleanliness, uniforms, or prescribed standards, when uniformly applied for admittance to a campus facility, or when uniformly applied to a class of employees, or when such bodily conditions or characteristics, or manner or style of dress or personal grooming presents a danger to the health, welfare or safety of any individual.

C. This code shall apply to the campus community. The term "campus community" is limited to Campus students, faculty, and staff; and to departments, committees, offices and organizations under the supervision and control of the campus administration.

D. Exceptions
   1. The enforcement of Federal, State or County laws and regulations does not constitute prohibited discrimination for purposes of this code. Separate housing or other facilities for men and women, mandatory retirement-age requirements, separate athletic teams when required by athletic conference regulations and political, religious and ethnic/cultural clubs are not prohibited.
   2. Discrimination is not prohibited where based on a bona fide job qualification or a qualification required for the fulfillment of bona fide educational or other institutional goals. Complaints concerning the legitimacy of such qualifications may be the subject of human relations grievance actions.
   3. The provisions of this code shall not apply to potential students or potential employees of the University. However, applicants for admission or employment who believe they have been discriminated against by any part of the campus community may convey such belief together with all relevant facts to the Office of Human Relations Programs, for informational purposes.
   4. The grievance procedures under this code shall not apply to judgments concerning academic performance of students (e.g., grades, dissertation defenses), pending further study and action by the Campus Senate and University Administration.
   5. The campus, with the advice and approval of the Attorney General's Office, shall review on a continuing basis all new laws and regulations that apply to this campus to determine if any shall require changes in the coverage or exceptions to coverage of this code.

E. This code shall apply to the campus community in relation to, but not only to, the following:
   1. All educational, athletic, cultural, and social activities occurring on the campus or in another area under its jurisdiction;
   2. All services rendered by the campus to students, faculty, and staff, such as job placement and job recruitment programs and off-campus listings of housing;
   3. University-sponsored programs occurring off campus, including cooperative programs, adult education, athletic events, and any regularly scheduled classes;
   4. Housing supplied, regulated, or recommended by the campus for students, staff and visitors, including fraternities and sororities;
   5. Employment relations between the campus and all of its employees, including matters of promotion in academic rank, academic salary, and termination of faculty status, as limited in III.M.

Article III Human Relations Enforcement Procedures

A. In order to identify policies or practices that may reflect discrimination, the Senate Adjunct Committee on Human Relations may request the Office of Human Relations Programs to conduct periodic review of the operation of any unit of the campus. Units shall provide the information necessary for carrying out such reviews. This information shall be submitted through the chancellor's Office. Any such review under the authority granted in this statement of policy shall be undertaken only after specific authorization of the chancellor. In the event that the chancellor fails to authorize an investigation within a reasonable time of the request by the Senate Adjunct Committee on Human Relations, the chair of the Committee shall report that fact, together with reasons as he/she may have received from the chancellor concerning the matter, to the Senate.

B. The Office of Human Relations Programs on its own motion shall identify policies, practices, or patterns of behavior that may reflect discrimination prohibited by this code or that may conflict with any other campus policy concerning human relations or with the Campus Affirmative Action Plan, and shall call these to the attention of the appropriate officials of the unit involved and recommend appropriate action. Those subject to allegations of discrimination shall be afforded all the protections of due process. The office shall endeavor by negotiation to eliminate the alleged discrimination. Where such efforts fail, the office may on its own motion report the matter to the chancellor and to the Senate Adjunct Committee on Human Relations. Documentation of the recommendations by the office in all such cases shall be maintained on file by the office.

C. To the maximum extent consistent with the purposes of this code, the confidentiality of personal papers and other records and the principle of privileged communication shall be respected by all persons involved in the enforcement procedures of this code. Nothing in this code shall be construed so as to conflict with the requirements of Article 76A of the Maryland Annotated Code. Persons giving information in connection with the procedures described in this code shall be advised by the person receiving such information of the limits of confidentiality which may properly be observed in code procedures and that all documents may be subject to subpoena in subsequent administrative or judicial proceedings.

D. Any member of the campus community who believes that he or she has been or is being discriminated against in ways prohibited by this code may consult informally and confidentially with the unit EEEO Officer and/or the equity officer and/or the Office of Human Relations Programs prior to filing a formal complaint.

E. The Office of Human Relations Programs shall receive formal complaints from any member or group within the campus community claiming to be aggrieved by alleged discrimination prohibited by this code and/or any other campus document or policy relating to human relations practices. Such complaints should give in writing the names of complainant(s) and respondent(s) and the time, the place, and a specific description of the alleged discrimination. Complaints shall be submitted to the Office of Human Relations Programs, or else to the unit EEEO Officer or the equity officer. Complaints must be submitted within one hundred and twenty (120) days of the alleged discrimination act(s), or within one hundred and twenty (120) days of the first date by which the complainant reasonably has knowledge thereof. Complaints not submitted directly to the Office of Human Relations Programs shall be forwarded to the Office of Human Relations Programs within five (5) working days of their receipt. Copies of the complaint shall be forwarded by the Office of Human Relations Programs to the respondent and to the appropriate unit chair or director, dean, or vice chancellor.

F. Complainants under this code shall be required, as a condition precedent, to waive any alternative campus administrative procedure that may then be available. A complaint that has been heard under some alternative campus procedure cannot subsequently be heard under the procedure of this code. In the case of a complaint heard under the Classified Employees Grievance Procedure, this restriction shall apply only when the complaint has entered Step Three of that procedure.

G. The Office of Human Relations Programs and/or the equity officer shall ensure that each complainant is informed of his/her right to file the complaint with the appropriate State and Federal agencies. Forms for complaints to State and Federal agencies will be provided or the complainant will be informed where they are available.

H. All complaints of discrimination that are not connected with the official functions of the campus or not falling within the scope of discrimination prohibited by this code shall be referred to the appropriate campus, municipal, County, State, or Federal agencies by the Office of Human Relations Programs.

I. After a complaint has been filed, the Office of Human Relations Programs shall promptly undertake an informal investigation in order to make a preliminary determination as to whether or not the subject matter of the complaint falls within the code, and whether or not there is probable cause for the complaint. This finding shall be reported to the complainant, the respondent, the chancellor, and the chair of the Senate Adjunct Committee on Human Relations. The burden of proof in this investigation and throughout these enforcement procedures rests with the complainant.

J. If the finding is that there is not probable cause to believe that discrimination has been or is being committed within the scope of this code, the Office of Human Relations Programs may dismiss the complaint. Such dismissal shall be reported to the complainant, the respondent, the chancellor, and the chair of the Senate Adjunct Committee on Human Relations. The complainant in such a case may appeal the dismissal of the case to the Senate Adjunct Committee on Human Relations, which may direct that a Human Relations Grievance Committee conduct a grievance hearing according to the procedures set forth herein, if in the judgment of the Senate Adjunct Committee on Human Relations there is probable cause to believe that discrimination has been or is being committed within the scope of this code. The Senate Adjunct Committee on Human Relations shall have access to the complaint file for this purpose. A record of its deliberations shall be placed in the file according to the procedures established by the Office of Human Relations Programs. If the committee finds no probable cause, it may dismiss the complaint, and report such dismissal to the complainant, the respondent, and the chancellor.

K. If the finding is that there is probable cause to believe that discrimination has been or is being committed within the scope of this code, the Office of Human Relations Programs shall endeavor to eliminate the alleged discrimination by conference conciliation and persuasion. If by this process, an agreement is reached for elimination of the alleged discrimination, the agreement shall be reduced to writing and signed by the respondent, the complainant and the director of the Office of Human Relations Programs. The agreement shall be available to the chancellor, the equity officer, and to the chair of the Senate Adjunct Committee on Human Relations, upon request.

L. If a finding of probable cause is made but no mutually satisfactory solution can be reached under the procedures outlined in section K immediately preceding, the Office of Human Relations Programs shall initiate the following procedure: the Office shall notify the Senate Adjunct Committee on Human Relations of the failure to reach a mutually satisfactory solution, whereupon, providing the complainant requests in writing a Human Relations Grievance Hearings, a Human Relations Grievance Committee shall be selected according to the procedures described in Article IV following. Grievance hearing shall be closed unless both parties to the dispute agree that the hearing, or any part thereof, shall be open to the public. All parties to the dispute shall be sent within five (5) working days of the written request of such a hearing, written notification of the time and place of the beginning of the hearing and a specific statement of the charges. Hearings shall be held as promptly as is consistent with allowing adequate time for the parties to prepare their cases. Continuances may be granted within the discretion of the Office of Human Relations Programs. All parties shall have ample opportunity to present their facts and arguments in full during the hearing. All findings, recommendations, and conclusions by the Grievance Committee shall be based solely on the evidence presented during the hearing, and shall be based on a preponderance of the evidence having probative effect. The burden of proof rests with the complainant. The Grievance Committee may be assisted by an adviser. All the parties to the dispute and the Grievance Committee may invite persons to testify during the hearing. Each side shall have the right to cross-examine witnesses. Each party has the right to be represented by counsel or other representative, but the University has no obligation to provide such counsel for any party to the dispute. If a party intends to be represented by legal counsel during the hearing, he/she shall inform the Office of Human Relations Programs of this fact no later than seventy-two (72) hours prior to the hearing, and that office shall provide that information to the other party or parties. A verbatim record shall be kept of all sessions in which testimony and evidence are presented regarding the case, and this record shall be made available to all parties to the dispute at the conclusion of the proceedings. Upon request the chair of the Grievance Committee may, in his or her discretion, recess the hearing to permit review of the record by one or more parties in the conduct of their case. The chair of a Human Relations Grievance Committee with the advice of the adviser, if there is one, shall rule on all matters of procedure and admissibility of evidence. Any member of the committee not concurring in the ruling of the chair may request a closed session of the committee for debate on the point. A majority vote of the committee will determine the final decision. Formal rules of evidence shall not be applicable to any hearing before a Human Relations Grievance Committee, and any evidence or testimony that the committee believes to be relevant to a fair determination of the complaint may be admitted. The committee

reserves the right to exclude incompetent, irrelevant, immaterial and repetitious evidence.

M. In cases of allegations regarding prohibited discrimination concerning academic employment matters, a Human Relations Grievance Committee shall not substitute its judgment of academic competence for the judgment of the appropriate colleagues of the complainant. The function of the Grievance Committee shall be to determine
   a. whether there were clearly enunciated University, campus and department standards, policies, procedures, and priorities by which to assess the merit of the complaint, and whether the complainant was given a reasonable opportunity to demonstrate his/her academic merit;
   b. whether the stated standards, policies, procedures, and priorities were applied to the complainant in a nondiscriminatory manner.

N. Within ten (10) working days after hearing all the evidence and arguments, the Human Relations Grievance Committee shall prepare a written decision based solely on the evidence presented at the hearing. This decision shall include a summary of the evidence before the committee and the committee's findings as to whether or not a violation of the code has occurred, and the recommendations of the committee. Grievance Committees may recommend whatever forms of relief they deem appropriate, but must take due cognizance of the limitations imposed by State law and by the procedures established by the Board of Regents, for example, the procedures by which promotion in academic rank is achieved. Within five (5) working days after the decision has been filed in the Office of Human Relations Programs, the director of that office will formally notify all parties to the dispute, the chancellor, and the Senate Adjunct Committee on Human Relations of the decision.

O. The chancellor shall within ten (10) working days of receipt of the decision of the Human Relations Grievance Committee issue an order specifying what actions, if any, must be taken by individuals or groups found to be guilty of violating the provisions of this code.

P. When a hearing has been scheduled by an outside agency or court, the Office of Human Relations Programs may, with the approval of the Senate Adjunct Committee on Human Relations, prior to the convening of a Human Relations Grievance Committee to hear a case, postpone or terminate the campus grievance proceedings when such postponement or termination is in its judgment warranted by administrative considerations such as staff limitations and workload, or at the request of a party upon a showing that the campus hearing will either conflict with the off-campus hearing, or that participation in the campus hearing will unreasonably burden a party's preparation of his/her case or otherwise work to his/her prejudice. Such postponement or termination shall be reported to the complainant, respondent, and chancellor. In any case where a complaint has been the subject of prior administrative or judicial resolution or where a complaint becomes the subject of such resolution during the course of proceedings under this code, the procedures of this code will not be applicable or will terminate, as the case may be.

Q. The chancellor shall provide a written explanation of the order whenever that order is not in keeping with the findings and recommendations of the Human Relations Grievance Committee. This explanation shall be sent to all parties to the dispute, to the chair of the Senate Adjunct Committee on Human Relations, to the director of the Human Relations Programs, and to the chair of the Senate. The chair of the Senate Adjunct Committee on Human Relations shall report to the Senate Executive Committee concerning the order and explanation at the next meeting of the Executive Committee, and that body shall put the matter on the agenda of the next meeting of the Senate.

R. When required by law, copies of the Human Relations Grievance Committee's findings and recommendations and of the Chancellor's order and explanation, if any, shall be sent to the State and Federal agencies charged with enforcement of Article 49B of the Annotated Code of Maryland and the Equal Employment Opportunity Act of 1968 or their successors.

S. When a complainant receives a decision on his/her charge of discrimination from a Human Relations Grievance Committee that decision shall not be subject to review under any grievance procedure in force on the campus.

T. No affirmative relief shall be made to a complainant by the University unless the complainant executes the following release as part of a settlement agreement:

   The complainant hereby waives, releases, and covenants not to sue The University of Maryland or its officers, agents, or employees with respect to any matters that were or might have been alleged as charges filed under the Human Relations Code in the instant case, subject to performance by The University of Maryland, its officers, agents, and employees, of the promises contained in this settlement agreement.

Article IV Constitution of Human Relations Grievance Committee

A. A Human Relations Grievance Committee shall consist of five members selected by an affirmative vote of at least two members of a selection panel consisting of 1.The vice chancellor of the unit of the campus within which the alleged discrimination falls. In cases of disputed jurisdiction, decisions as to which vice chancellor shall participate will be made by the several vice chancellors. 2.The director of the Office of Human Relations Programs. 3.The chair of the Senate Adjunct Committee on Human Relations. If any of these persons is unable to participate, he or she shall designate a suitable replacement.

B. The selection of a Human Relations Grievance Committee shall be made in such a way as to promote a fair and impartial judgment. An effort shall be made to constitute the Grievance Committee of persons reasonably familiar with the kind of employment or other situation that the case concerns.

C. A determined effort shall be made to gain the consent of complainant and respondent concerning the membership of the Grievance Committee. If in the judgment of the selection panel such efforts become unreasonably prolonged, membership will be determined by majority vote of the selection panel.

D. None of the members of a Grievance Committee shall have been involved in the action that is the subject of the complaint. This selection panel shall remove a member of a Grievance Committee whenever it finds that member to have a personal involvement in that case; and may excuse a member from serving on the Grievance Committee on grounds of illness or on other reasonable grounds.

E. Members of the Senate Adjunct Committee on Human Relations shall not be eligible concurrently for inclusion on Human Relations Grievance Committees.

F. The chair of a Human Relations Grievance Committee shall be elected by the members of the committee.

G. Members of a Human Relations Grievance Committee and those officially involved in a hearing shall not be penalized either academically or financially for time missed from work or classes during official meetings of the committee.

Article V The Equal Education and Employment Opportunity Officer

A. Equal Education and Employment Opportunity Officers shall be instrumental in the implementation of the Human Relations Code within each unit of the College Park Campus.

B. Employees on all levels within each unit of the campus will have access to the assistance of an EEEO Officer. In non-academic units, EEEO Officers shall be elected by unit employees under the supervision of the equity officer within whose responsibility the unit falls, or shall be selected by the unit director in consultation with the appropriate equity officer, in either case in accordance with the Affirmative Action Plan of that unit. EEEO Officers in the academic colleges shall be chosen in the manner prescribed by the council of each college.

C. The functions of EEEO Officers shall include but not be limited to:
   1. Advising unit administrators with respect to the preparation plans, procedures, regulations, reports, and other matters pertaining to the Campus Human Relations Program.
   2. Evaluating periodically the effectiveness and sufficiency of unit Affirmative Action Plans and other unit plans in relation to the goals of this code, and reporting these to unit administrators with recommendations as to what improvements or corrections are needed.
   3. Participating in the development of policies and programs within units with respect to hiring and recruitment, training and upgrading, and in all matters pertaining to the elimination of discrimination prohibited by this code. If a unit fails to develop policies and programs of this nature, it is the task of the EEEO officer to act in an advocacy role and call this fact first to the attention of the unit administrator, and if no responsive action ensues, then to the Collegiate Assistant for Affirmative Action. The EEEO officer is free at all times to report such cases directly to the Office of Human Relations Programs and the Senate Adjunct Committee on Human Relations.
   4. Serving in a liaison capacity between the unit to which he she is assigned and all segments of its personnel and attempting to remedy problems brought to his/her attention regarding alleged discrimination.
   5. Advising students or employees of the unit who have reason to believe that discrimination as defined in this code is occurring. At the request of the aggneved person the EEEO officer shall keep

any or all aspects of the grievance confidential until a formal complaint has been filed. If the aggrieved so requests, the EEEO officer shall attempt to resolve the matter, calling upon the assistance of the equity officer where appropriate. The EEEO officer will keep a record of such advisory and conciliatory activities and periodically brief the equity officer.

6. Advising and otherwise aiding complainants in making formal complaints under this code. When a complaint is filed with an EEEO officer, the complaint shall be forwarded by that officer within five (5) working days to the equity officer and the Office of Human Relations Programs. The EEEO officer shall be available to assist in a preliminary investigation of the complaint conducted under the general supervision of the Office of Human Relations Programs, to determine whether there is probable cause to believe that prohibited discrimination has occurred.
7. Making recommendations to the Office of Human Relations Programs to help facilitate human relations programs on campus.
8. Assisting units in publicizing the functions of EEEO officers.
9. Collecting pertinent information regarding hiring, upgrading and promotion opportunities within units and disseminating such information to appropriate personnel.

D. The EEEO officer shall have the full support of the unit administration, the college administration, and the Office of Human Relations Programs. The EEEO officer shall be afforded reasonable time from other regular duties to perform the functions of the office. These functions shall qualify as part of a workday in the case of a staff member and as partial fulfillment of required committee loads in the case of faculty. The EEEO officer shall be free from interference, coercion, harassment, discrimination, or unreasonable restraints in connection with the performance of the duties specified in this code.

Article VI Effective Date

This code shall be effective as of October 18, 1976, and shall apply only to those complaints alleging discriminatory acts that occurred on or after that date.

Appendix B: Campus Policy and Procedures on Sexual Harassment

I. Policy

The University of Maryland, College Park, is committed to maintaining a work and learning environment in which students, faculty, an d staff can develop intellectually, professionally, personally, and socially. Such an environment must be free of intimidation, fear, coercion, and reprisal. The Campus prohibits sexual harassment. Sexual harassment may cause others unjustifiable offense, anxiety and injury. Sexual harassment threatens the legitimate expectation of all members of the campus community that academic or employment progress is determined by the publicly stated requirements of job and classroom performance, and that the campus environment will not unreasonably impede work or study.

Sexual harassment by University faculty, staff, and students is prohibited. This constitutes Campus policy. Sexual harassment may also constitute violations of the criminal and civil laws of the State of Maryland and the United States. For the purpose of this Campus policy, sexual harassment is defined as: (1) unwelcome sexual advances; or (2) unwelcome requests for sexual favors; and (3) other behavior of a sexual nature where:

A. Submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment or participation in a University-sponsored educational program or activity; or
B. Submission to or rejection of such conduct by an individual is used as the basis for academic or employment decision affecting that individual; or
C. Such conduct has the purpose or effect of unreasonably interfering with an individual's academic or work performance, or of creating an intimidating, hostile, or offensive educational or working environment.

In assessing whether a particular act constitutes sexual harassment forbidden under this policy, the standard shall be the perspective of a reasonable person within the College Park Campus community. The rules of common sense and reason shall prevail. Allegations of sexual harassment shall be judged with attention to the facts particular to the case and the context in which the alleged incident(s) occurred.

Conduct prohibited under this policy may manifest itself in many different ways. Sexual harassment may, for example, be as undisguised as a direct solicitation of sexual favors, or solicitation accompanied by overt threats. Harassment may also be implied, arising from the relative situation of the parties. In this regard, the following types of acts are more likely-than-not to result in allegations of sexual harassment: unwelcome physical contact, sexual remarks about a person's clothing, body, or sexual relations, conversation of a sexual nature or similar jokes and stories, and the display of sexually explicit materials in the workplace or used in the classroom which are without defensible educational purpose.

Sexual harassment may occur within a variety of relationships. It may occur among peers. It may occur where no relation exists between the parties other than being co-employees, or co-students. Especially injurious, on the other hand, is harassment in relationships characterized by an inequality of power, where one party has institutional authority over the other. Inherent in these relationships is the power and fear of reprisal. Typically, such relationships are found between employer and employee; senior faculty and junior faculty; graduate teaching assistant and undergraduate; and faculty and student, when the student is enrolled in a faculty member's class or when the student is in a continuing position to require evaluation or work or letters of recommendation from the faculty. Such relationships can be immediate, here and now, or based upon future expectations, e.g., the need for future evaluations and references. Sexual harassment may occur between persons of the same or different genders.

Education and awareness are the best tools for the elimination of sexual harassment. The Campus is committed to taking appropriate action against those who violate the provisions of the Policy. The Campus is committed to protecting targets of harassment from retaliation.

II. PROCEDURES

Individuals who believe themselves subjected to an incident of sexual harassment should be aware that there are many ways to bring it to the attention of the University, and, where proper, obtain redress or protection. There is an informal route. There are also more formal procedures of long-standing which are sufficiently broad to deal with sexual harassment. Preventing sexual harassment is a responsibility of the entire campus community. The Campus has made this a priority, but ultimately, no satisfactory investigation or resolution of a complaint can occur without the initiative and continuous cooperation of the person who feels injured. Similarly, allegations of sexual harassment are extremely serious, with potential for great harm to all persons if ill-conceived or without foundation. Procedures which implement campus policy recognize that potential. The Campus is committed to protecting the rights of the alleged offender as well as the offended.

A. Informal Consideration
An incident of sexual harassment may be reported to any Campus or University official or faculty member, including an individual's supervisor, department chair or dean, the Director of Personnel, a departmental or college equity officer, the Director of the Office of Human Relations, and to the President's Legal Office. When an individual receives a report of sexual harassment, he or she will notify the Legal Office prior to taking any action to investigate or resolve the matter informally. The Legal Office will normally manage and coordinate all matters relating to complaints. Complainants will be advised of relevant campus policies and procedures, and the informal and formal means of resolving the matter will be explained. While a written complaint is not required to initiate an informal investigation, the Legal Office must receive a signed complaint from the offended person before any sanctions or other action can be undertaken against an individual for sexual harassment. If the matter is to be investigated, consideration shall be given to the situation and wishes of the complainant. The investigation of a complaint will include discussing the matter with the person accused of sexual harassment. The findings of the investigation shall be confidentially reported to the Chancellor and to the relevant vice chancellor, dean, chairman or supervisor for any necessary action. Sanctions for sexual harassment may range from reprimand to termination, depending upon the circumstances of the case.

B. Formal Complaints
Formal grievance procedures for resolving sexual harassment complaints are available based on the classification of the aggrieved person. All faculty members may file with the dean of their academic unit under the Faculty Grievance Procedure contained within the Faculty Handbook of the College Park Campus, University of Maryland. Associate Staff employees may file with the Employee Specialist under the Associate Staff Grievance Procedure contained within the Personnel Policies and Rules for Associate Staff Employees of the University of Maryland. Office of Personnel, 1129 Lee Building, 405-

5648. Classified employees may file with the Employee Specialist under the Classified Grievance Procedure contained within The Handbook of Classified Employees, Office of Personnel, 1129 Lee Building, 405-5648. Students may file under the code of Student Conduct, Office of Judicial Programs, 2108 Mitchell Building, 314-8204. Faculty, associate staff, classified staff, and students may file under the UMCP Human Relations Code with a Campus unit equity administrator or the Campus Compliance Officer, Office of Human Relations Program, 1107 Hornbake Library, 405-2838.

Code of Student conduct : Approved by the Board of Regents January 25, 1980. Amended effective September 3, 1991. Note: Different procedures and penalties are applicable in cases involving allegations of academic dishonesty. Please refer to the Code of Academic Integrity , available from the Office of the Student Honor Council (314 8450).

Appendix C: Code of Student Conduct and Annotations

Approved by the Board of Regents January 25, 1980. Amended effective September 3, 1991.

Note: Different procedures and penalties are applicable in cases involving allegations of academic dishonesty. Please refer to the Code of Academic Integrity, available from the Office of the Student Honor Council (314-8450).
Footnotes which appear throughout the Code of Student Conduct refer to the Annotations listed at the end of this appendix.

Rationale

1. The primary purpose for the imposition of discipline in the University setting is to protect the campus community. Consistent with that purpose, reasonable efforts will also be made to foster the personal and social development of those students who are held accountable for violations of University regulations.[1]

Definitions

2. When used in this Code:[2]
   (a) the term "aggravated violation" means a violation which resulted or foreseeably could have resulted in significant damage to persons or property or which otherwise posed a substantial threat to the stability and continuance of normal University or University sponsored activities.
   (b) the term "distribution" means sale or exchange for personal profit.
   (c) the term "group" means a number of persons who are associated with each other and who have not complied with University requirements for registration as an organization.
   (d) the terms "institution" and "University" mean the University of Maryland, College Park.
   (e) the term "organization" means a number of persons who have complied with University requirements for registration.
   (f) the term "reckless conduct" means action which any member of the University community can be expected to know would create a clear risk of harm to persons or property, or would disrupt the lawful activities of others, including studying, teaching, research, and university administration.[3] *
   (g) the term "student" means a person taking or auditing courses at the institution either on a full or part-time basis.[4]
   (h) the term "University premises" means buildings or grounds owned, leased, operated, controlled or supervised by the University
   (i) the term "weapon" means any object or substance designed to inflict a wound, cause injury, or incapacitate, including, but not limited to, all firearms, pellet guns, switchblade knives, knives with blades five or more inches in length, and chemicals such as "Mace" or tear-gas.
   (j) the term "University sponsored activity" means any activity on or off campus which is initiated, aided, authorized or supervised by the University.
   (k) the terms "will" or "shall" are used in the imperative sense.

Interpretation of Regulations

3. Disciplinary regulations at the University are set forth in writing in order to give students general notice of prohibited conduct. The regulations should be read broadly and are not designed to define misconduct in exhaustive terms.

Inherent Authority

4. The University reserves the right to take necessary and appropriate action to protect the safety and well-being of the campus community.[5]

Student Participation

5. Students are asked to assume positions of responsibility in the University judicial system in order that they might contribute their skills and insights to the resolution of disciplinary cases. Final authority in disciplinary matters, however, is vested in the University administration and in the Board of Regents.

Standards of Due Process

6. Students subject to expulsion, suspension[6] or disciplinary removal from University housing[7] will be accorded a judicial board hearing as specified in Part 29 of this Code. Students subject to less severe sanctions will be entitled to an informal disciplinary conference,[8] as set forth in Parts 31 and 32.
7. The focus of inquiry in disciplinary proceedings shall be the guilt or innocence of those accused of violating disciplinary regulations. Formal rules of evidence shall not be applicable, nor shall deviations from prescribed procedures necessarily invalidate a decision or proceeding, unless significant prejudice to a student respondent or the University may result.[9]

Violations of Law and Disciplinary Regulations

8. Students may be accountable to both civil authorities and to the University for acts which constitute violations of law and of this Code.[10] Disciplinary action at the University will normally proceed during the pendency of criminal proceedings and will not be subject to challenge on the ground that criminal charges involving the same incident have been dismissed or reduced.

Prohibited Conduct

9. The following misconduct is subject to disciplinary action:
   (a) intentionally or recklessly causing physical harm to any person on University premises or at University sponsored activities, or intentionally or recklessly causing reasonable apprehension of such harm.
   (b) unauthorized use, possession or storage of any weapon on University premises or at University sponsored activities.
   (c) intentionally initiating or causing to be initiated any false report, warning or threat of fire, explosion or other emergency on University premises or at University sponsored activities.
   (d) any act or omission committed on or off-campus that constitutes a serious criminal offense. A serious criminal offense is hereby defined as being an action which Maryland state law identifies as a felony and which indicates that the student constitutes a substantial and continuing danger to the safety or property of the University or members of the campus community.
   (e) knowingly violating the terms of any disciplinary sanction imposed in accordance with this Code.
   (f) intentionally or recklessly misusing or damaging fire safety equipment.
   (g) unauthorized distribution or possession for purposes of distribution of any controlled substance or illegal drug[11] on University premises or at University sponsored activities.
   (h) intentionally furnishing false information to the University
   (i) making, possessing, or using any forged, altered, or falsified instrument of identification on University premises, or at University sponsored activities; making, possessing, or using any forged, altered, or falsified University document, on or off-campus.
   (j) intentionally and substantially interfering with the freedom of expression of others on University premises or at University sponsored activities.[12]
   (k) theft of property or of services on University premises or at University sponsored activities; knowing possession of stolen property on University premises or at University sponsored activities.
   (l) intentionally or recklessly destroying or damaging the property of others on University premises or at University sponsored activities.

(m) engaging in disorderly or disruptive conduct on University premises or at University sponsored activities which interferes with the activities of others, including studying, teaching, research, and University administration.*

(n) failure to comply with the directions of University officials, including campus police officers, acting in performance of their duties.

(o) violation of published University regulations or policies, as approved and compiled by the Vice President for Student Affairs.[13] Such regulations or policies may include the residence hall contract, as well as those regulations relating to entry and use of University facilities, sale or consumption of alcoholic beverages, use of vehicles** and amplifying equipment, campus demonstrations, and misuse of identification cards.

(p) use or possession of any controlled substance or illegal drug on University premises or at University sponsored activities.[14] ***

(q) unauthorized use or possession of fireworks on University premises.

* The response of fire, police, or emergency personnel to a non-frivolous call, or action taken by them on their own initiative pursuant or non-pursuant to policy is not considered a disruption or reckless action within the meaning of this section.

** Parking and traffic violations may be processed in accordance with procedures established by the Vice President for Student Affairs.

*** This charge is considered an aggravated violation as defined by Part 2 (a) and may result in suspension or expulsion from the University.

Sanctions

10. Sanctions for violations of disciplinary regulations consist of:
    (a) EXPULSION: permanent separation of the student from the University. Notification will appear on the student's transcript. The student will also be barred from the University premises (expulsion requires administrative review and approval by the President and may be altered, deferred or withheld).
    (b) SUSPENSION: separation of the student from the University for a specified period of time. Permanent notification will appear on the student's transcript. The student shall not participate in any University sponsored activity and may be barred from University premises. Suspended time will not count against any time limits of the Graduate School for completion of a degree. (Suspension requires administrative review and approval by the Vice President for Student Affairs and may be altered, deferred or withheld).
    (c) DISCIPLINARY PROBATION: the student shall not represent the University in any extracurricular activity or run for or hold office in any student group or organization. Additional restrictions or conditions may also be imposed. Notification will be sent to appropriate University offices, including the Office of Campus Activities.
    (d) DISCIPLINARY REPRIMAND: the student is warned that further misconduct may result in more severe disciplinary action.
    (e) RESTITUTION: the student is required to make payment to the University or to other persons, groups, or organizations for damages incurred as a result of a violation of this Code.
    (f) OTHER SANCTIONS: other sanctions may be imposed instead of or in addition to those specified in sections (a) through (e) of this part. For example, students may be subject to dismissal from University housing for disciplinary violations which occur in the residence halls. Likewise, students may be subject to restrictions upon or denial of driving privileges for disciplinary violations involving the use or registration of motor vehicles. Work or research projects may also be assigned.
11. Violations of sections (a) through (g) in Part nine of this Code may result in expulsion from the University,[15] unless specific and significant mitigating factors are present. Factors to be considered in mitigation shall be the present demeanor and past disciplinary record of the offender, as well as the nature of the offense and the severity of any damage, injury, or harm resulting from it.
12. Violations of sections (h) through (k) in Part nine of this Code may result in suspension from the University, unless specific and significant mitigating factors as specified in Part 11 are present.
13. Repeated or aggravated violations of any section of this Code may also result in expulsion or suspension or in the imposition of such lesser penalties as may be appropriate.
14. Attempts to commit acts prohibited by this Code shall be punished to the same extent as completed violations.[16]
15. Penalties for off-campus misconduct shall not be more severe than for similar on-campus conduct.

Interim Suspension[17]

16. The Vice President for Student Affairs or a designee may suspend a student for an interim period pending disciplinary proceedings or medical evaluation, such interim suspension to become immediately effective without prior notice, whenever there is evidence that the continued presence of the student on the University campus poses a substantial threat to him or herself or to others or to the stability and continuance of normal University functions.
17. A student suspended on an interim basis shall be given an opportunity to appear personally before the Vice President for Student Affairs or a designee within five business days from the effective date of the interim suspension in order to discuss the following issues only:
    (a) the reliability of the information concerning the student's conduct, including the matter of his or her identity;
    (b) whether the conduct and surrounding circumstances reasonably indicate that the continued presence of the student on the University campus poses a substantial threat to him or herself or to others or the stability and continuance of normal University functions.

The Judicial Programs Office

18. The Judicial Programs Office directs the efforts of students and staff members in matters involving student discipline. The responsibilities of the office include:
    (a) determination of the disciplinary charges to be filed pursuant to this Code.
    (b) interviewing and advising parties[18] involved in disciplinary proceedings.
    (c) supervising, training, and advising all judicial boards.
    (d) reviewing the decisions of all judicial boards.[19]
    (e) maintenance of all student disciplinary records.
    (f) development of procedures for conflict resolution.
    (g) resolution of cases of student misconduct, as specified in Parts 31 and 32 of this Code.
    (h) collection and dissemination of research and analysis concerning student conduct.
    (i) submission of a statistical report each semester to the campus community, reporting the number of cases referred to the office, the number of cases resulting in disciplinary action, and the range of sanctions imposed.[20]

Judicial Panels

19. Hearings or other proceedings as provided in the Code may be held before the following boards or committees:
    (a) CONFERENCE BOARDS, as appointed in accordance with Part 32 of this Code.
    (b) RESIDENCE BOARDS, as established and approved by the Vice President for Student Affairs.[21] Students residing in group living units owned, leased, operated or supervised by the University may petition the Vice President for authority to establish judicial boards. Such boards may be empowered to hear cases involving violations of the Code, as prescribed by the Vice President for Student Affairs.
    (c) THE CENTRAL BOARD hears cases involving disciplinary violations which are not referred to Residence Boards or resolved in accordance with Parts 31 and 32 of this Code. The Central Board is composed of five full-time students, including at least two graduate students.
    (d) THE APPELLATE BOARD hears appeals from Residence Boards, the Central Board, and ad hoc boards, in accordance with Part 41 of this Code. The Appellate Board is composed of five full-time students, including at least two graduate students.
    (e) AD HOC BOARDS may be appointed by the Director of Judicial Programs when a Conference Board, a Residence Board, the Central Board, the Appellate Board or the Senate Adjunct Committee are unable to obtain a quorum or are otherwise unable to hear a case.[22] Each ad hoc board shall be composed of three members, including at least one student.
    (f) THE SENATE COMMITTEE ON STUDENT CONDUCT hears appeals as specified in Part 40 of this Code. The committee also approves the initial selection of all judicial board members, except members of conference and ad hoc boards.[23]

20. The presiding officer of each judicial board and of the Senate Adjunct Committee on Student Conduct may develop bylaws which are not inconsistent with any provision in this Code. Bylaws must be approved by the Director of Judicial Programs.[24]

Selection and Removal of Board Members

21. Members of the various judicial boards are selected in accordance with procedures developed by the Director of Judicial Programs.
22. Members of conference and ad hoc boards are selected in accordance with Parts 32 and 19 (e), respectively.
23. Prospective members of the Central Board and the Appellate Board are subject to confirmation by the Senate Committee on Student Conduct.
24. Members of the Senate Committee on Student Conduct are selected in accordance with the bylaws of the University Senate.
25. Prior to participating in board or committee deliberations, new members of the Senate Adjunct Committee on Student Conduct and all judicial boards, except conference and ad hoc boards, will participate in one orientation session by the Judicial Programs Office.
26. Student members of any judicial board or committee who are charged with any violation of this Code or with a criminal offense[25] may be suspended from their judicial positions by the Director of Judicial Programs during the pendency of the charges against them. Students convicted for any such violation or offense may be disqualified from any further participation in the University judicial system by the Director of Judicial Programs. Additional grounds and procedures for removal may also be set forth in the bylaws of the various judicial panels.

Case Referrals

27. Any person[26] may refer a student or a student group or organization suspected of violating this Code to the Judicial Programs Office. Persons making such referrals are required to provide information pertinent to the case and will normally be expected to appear before a judicial board as the complainant.[27]

Deferral of Proceedings

28. The Director of Judicial Programs may defer disciplinary proceedings for alleged violations of this Code for a period not to exceed 90 days. Pending charges may be withdrawn thereafter, dependent upon the good behavior of the respondent.

Hearing Referrals

29. Staff members in the Judicial Programs Office will review referrals to determine whether the alleged misconduct might result in expulsion, suspension, or disciplinary removal from University housing.[28] Students subject to those sanctions shall be accorded a hearing before the appropriate judicial board. All other cases shall be resolved in the Judicial Programs Office after an informal disciplinary conference, as set forth in Part 31 and 32 of this Code.
30. Students referred to a judicial board hearing may elect instead to have their case resolved in accordance with Parts 31 and 32. The full range of sanctions authorized by this Code may be imposed, although the right of appeal shall not be applicable.

Disciplinary Conferences[29]

31. Students subject to or electing to participate in a disciplinary conference in the Judicial Programs Office are accorded the following procedural protections:
    (a) written notice of charges at least three days prior to the scheduled conference.
    (b) reasonable access to the case file[30] prior to and during the conference.
    (c) an opportunity to respond to the evidence against them and to call appropriate witnesses on their behalf.
    (d) the option to be accompanied and assisted by a representative, who may be an attorney. Representatives have the right to make opening and closing statements, to advise their clients during the course of the proceedings, and to petition for recesses. All representatives are subject to the restrictions of Parts 34 and 35 of this Code.
32. Disciplinary conferences shall be conducted by the Director of Judicial Programs or a designee.[31] Complex or contested cases may be referred by the Director to a conference board, consisting of one member of the Central Board, one member of the Appellate Board, and a staff member in the Division of Student Affairs. Conference Board members shall be selected on a rotating basis by the Director of Judicial Programs.

Hearing Procedures

33. The following procedural guidelines shall be applicable in disciplinary hearings:
    (a) respondents shall be given notice of the hearing date and the specific charges against them at least five days in advance and shall be accorded reasonable access to the case file, which will be retained in the Judicial Programs Office.
    (b) the presiding officer of any board may subpoena witnesses upon the motion of any board member or of either party and shall subpoena witnesses upon request of the board advisor.[32] Subpoenas must be approved by the Director of Judicial Programs and shall be personally delivered or sent by certified mail, return receipt requested. University students and employees are expected to comply with subpoenas issued pursuant to this procedure, unless compliance would result in significant and unavoidable personal hardship or substantial interference with normal University activities.[32]
    If the Director of Judicial Programs or his or her designee determines that a fair hearing cannot be held without the testimony of a particular witness, and, after good faith attempts are made, the witness either fails to or refuses to appear, the disciplinary hearing will be postponed until the witness agrees to appear or the charges will be dismissed.
    (c) respondents who fail to appear after proper notice will be deemed to have pleaded guilty to the charges pending against them.
    (d) hearings will be closed to the public, except for the immediate members of the respondent's family and for the respondent's representative. An open hearing may be held, at the discretion of the presiding officer, if requested by the respondent.
    (e) the presiding officer of each board shall exercise control over the proceedings to avoid needless consumption of time and to achieve the orderly completion of the hearing. Except as provided in section (o) of this Part, any person, including the respondent, who disrupts a hearing may be excluded by the presiding officer or by the board advisor.
    (f) hearings may be tape recorded or transcribed. If a recording or transcription is not made, the decision of the board must include a summary of the testimony and shall be sufficiently detailed to permit review by appellate bodies and by staff members in the Judicial Programs Office.
    (g) any party or the board advisor may challenge a board member on the grounds of personal bias. Board members may be disqualified upon majority vote of the remaining members of the board, conducted by secret ballot,[33] or by the Director of Judicial Programs.
    (h) witnesses shall be asked to affirm that their testimony is truthful and may be subject to charges of perjury, pursuant to Part 9 (h) of this Code.
    (i) prospective witnesses, other than the complainant and the respondent, may be excluded from the hearing during the testimony of other witnesses. All parties, the witnesses, and the public shall be excluded during board deliberations.
    (j) the burden of proof shall be upon the complainant, who must establish the guilt of the respondent by clear and convincing evidence.
    (k) formal rules of evidence shall not be applicable in disciplinary proceedings conducted pursuant to this Code.[34] The presiding officer of each board shall give effect to the rules of confidentiality and privilege, but shall otherwise admit all matters into evidence which reasonable persons would accept as having probative value in the conduct of their affairs. Unduly repetitious or irrelevant evidence may be excluded.[35]
    (l) respondents shall be accorded an opportunity to question those witnesses who testify for the complainant at the hearing.
    (m) affidavits shall not be admitted into evidence unless signed by the affiant and witnessed by a University employee, or by a person designated by the Director of Judicial Programs.
    (n) board members may take judicial notice of matters which would be within the general experience of University students.[36]
    (o) board advisors may comment on questions of procedure and admissibility of evidence and will otherwise assist in the conduct of the hearing. Advisors will be accorded all the privileges of board members, and the additional responsibilities set forth in this Code, but shall not vote. All advisors are

responsible to the Director of Judicial Programs and shall not be excluded from hearings or board deliberations by any board or by the presiding officer of any board.

(p) the Director of Judicial Programs may appoint a special presiding officer to any board in complex cases or in any case in which the respondent is represented by an attorney. Special presiding officers may participate in board deliberations, but shall not vote.[37]

(q) a determination of guilt shall be followed by a supplemental proceeding in which either party and the board advisor may submit evidence or make statements concerning the appropriate sanction to be imposed. The past disciplinary record[38] of the respondent shall not be supplied to the board by the advisor prior to the supplementary proceeding.

(r) final decisions of all judicial panels shall be by majority vote of the members present and voting. A tie vote will result in a recommended acquittal in an original proceeding. A tie vote in an appellate proceeding will result in an affirmation of the original decision.

(s) final decisions of all boards, except conference boards, shall be accompanied by a brief written opinion.

Attorneys and Representatives

34. Representatives of both complainants and respondents in hearings pursuant to this Code have the right to call witnesses to testify, to question in person all witnesses who appear at the hearing, to voice timely objections, to make opening and closing statements, to petition for recesses in the proceedings and to zealously and lawfully assert their client's position under the Declaration of Student Rights and the Code of Student Conduct.[39]

All presenters and representatives who participate in disciplinary hearings and disciplinary conferences shall not:

(a) intentionally engage in conduct to disrupt a hearing;

(b) intentionally attempt to improperly influence an officer of the Judicial Programs Office, a hearing advisor or member of a judicial board;

(c) intentionally fail to obey a reasonably definite and specific order by a presiding officer;

(d) knowingly make a false statement of material fact, law or representation of the Code to other participants in a hearing;

(e) knowingly fail to disclose a material fact in a hearing when disclosure is necessary to avoid assisting a future criminal or fraudulent act;

(f) knowingly offer false evidence, falsity evidence, counsel or induce witnesses to testify falsely, or offer improper inducements to testify;

(g) recklessly and unlawfully obstruct another party's access to evidence, or alter, destroy or conceal material not protected by privilege having potential evidentiary value;

(h) if the representative is an attorney, otherwise fail to follow any obligations under relevant standards of professional responsibility in matters pertaining to the representation.

35. (a) Any participant in a hearing may refer complaints about suspected violations of the provisions of Part 34 of this Code to the Senate Adjunct Committee on Student Conduct.

(b) Within a reasonable time after such referral, the chairperson of the Senate Adjunct Committee on Student Conduct will review the complaint. After review the chairperson shall dismiss complaints which are anonymous, manifestly frivolous, which cannot be reasonably construed to allege a violation of Part 34, or are based on hearsay alone. Those which are not dismissed will be referred to the full Committee which will convene a hearing no sooner that 10 business days after sending a copy of the evidence presented to the representative named in the complaint. The hearing shall be held under the relevant rules and procedures governing disciplinary hearings outlined in Parts 33-35 of this Code.

(c) A client shall not be compelled either directly or through their representative to waive the attorney-client privilege.

(d) Representatives found responsible for violations of the provisions of Part 34 may be suspended from the privilege of representation for such time as the Committee may deem appropriate. In addition, the Committee may refer their findings to the Attorney Grievance Commission, or other appropriate disciplinary body.

(e) Appeals from decisions of the Senate Committee on Student Conduct regarding violations under Part 34 may be made by parties found responsible. Appeals should be made in writing to the Senate Campus Affairs Committee within ten business days of receipt of the letter notifying the party of the decision. Appeals will be conducted in accordance with the standards for the hearing of student disciplinary appeals. Decisions of the Campus Affairs Committee regarding these appeals shall be final.

Student Groups and Organizations

36. Student groups and organizations may be charged with violations of this Code.

37. A student group or organization and its officers may be held collectively[40] or individually responsible when violations of this Code by those associated with[41] the group or organization have received the tacit or overt consent or encouragement of the group or organization or of the group's or organization's leaders, officers, or spokespersons.

38. The officers or leaders or any identifiable spokespersons[42] for a student group or organization may be directed by the Vice President for Student Affairs or a designee to take appropriate action designed to prevent or end violations of this Code by the group or organization or by any persons associated with the group or organization who can reasonably be said to be acting in the group's or organization's behalf. Failure to make reasonable efforts to comply with the Vice President's directive shall be considered a violation of Part 9(n) of this Code, both by the officers, leaders or spokespersons for the group or organization and by the group or organization itself.

39. Sanctions for group or organization misconduct may include revocation or denial of recognition or registration, as well as other appropriate sanctions, pursuant to Part 10(f) of this Code.

Appeals

40. Any determination made[43] pursuant to this Code resulting in expulsion or suspension may be appealed by the respondent to the Senate Committee on Student Conduct. The Senate Committee shall also hear appeals from denials of petitions to void disciplinary records, pursuant to Part 50 of this Code.

41. Final decisions of residence boards, the Central Board and ad hoc boards, not involving the sanctions specified in Part 40, may be appealed by the respondent to the Appellate Board.[44]

42. Requests for appeals must be submitted in writing to the Judicial Programs Office within seven business days from the date of the letter notifying the respondent of the original decision. Failure to appeal within the allotted time will render the original decision final and conclusive.[45]

43. A written brief in support of the appeal must be submitted to the Judicial Programs Office within 10 business days from the date of the letter notifying the respondent of the original decision. Failure to submit a written brief within the allotted time will render the decision of the lower board final and conclusive.[46]

44. Appeals shall be decided upon the record of the original proceeding and upon written briefs submitted by the parties. De novo hearings shall not be conducted.

45. Appellate bodies may:

(a) affirm the finding and the sanction imposed by the original board.

(b) affirm the finding and reduce, but not eliminate, the sanction, in accordance with Parts 46 and 46(a).

(c) remand the case to the original board, in accordance with Parts 46 and 46(b).

(d) dismiss the case, in accordance with Parts 46 and 46(c).

46. Deference shall be given to the determinations of lower boards.[47]

(a) sanctions may only be reduced if found to be grossly disproportionate to the offense.

(b) cases may be remanded to the original board if specified procedural errors or errors in interpretation of University regulations were so substantial as to effectively deny the respondent a fair hearing, or if new and significant evidence became available which could not have been discovered by a properly diligent respondent before or during the original hearing.[48] On remand, no indication or record of the previous judicial hearing will be introduced or provided to members of the new judicial panel, except to impeach contradictory testimony at the discretion of the presiding officer. The board will be directed by the committee not to repeat the specified errors that caused the remand.

(c) cases may be dismissed only if the finding is held to be arbitrary and capricious.[49]

(d) decisions of the Appellate Board shall be recommendations to the Director of Judicial Programs.[50] Decisions of the Senate Committee on Student Conduct shall be recommendations to the Vice President for Student Affairs. Decisions altering the determinations of all hearing boards and the Senate Adjunct Committee on Student Conduct shall be accompanied by a brief written opinion.

47. The imposition of sanctions will normally be deferred during the pendency of appellate proceedings, at the discretion of the Director of Judicial Programs.

Disciplinary Files and Records

48. Case referrals may result in the development of a disciplinary file in the name of the respondent, which shall be voided if the respondent is found innocent of the charges.[51] The files of respondents found guilty of any of the charges against them will be retained as a disciplinary record for three years from the date of the letter providing notice of final disciplinary action.[52] Disciplinary records may be retained for longer periods of time or permanently, if so specified in the sanction.

49. Disciplinary records may be voided[53] by the Director of Judicial Programs for good cause, upon written petition of respondents. Factors to be considered in review of such petitions shall include:
(a) the present demeanor of the respondent.
(b) the conduct of the respondent subsequent to the violation.
(c) the nature of the violation and the severity of any damage, injury, or harm resulting from it.

50. Denials of petitions to void disciplinary records shall be appealable to the Senate Committee on Student Conduct, which will apply the standard of review specified in Part 46 and 46(c). The requirements for appeals as set forth in Part 42 and 43 shall be applicable.[54]

51. Disciplinary records retained for less than 90 days or designated as "permanent" shall not be voided without unusual and compelling justification.[55]

Annotations

1. The University is not designed or equipped to rehabilitate or incapacitate persons who pose a substantial threat to themselves or to others. It may be necessary, therefore, to remove those individuals from the campus and to sever the institutional relationship with them, as provided in this Code of Student Conduct and by other University regulations.

   Any punishment imposed in accordance with the Code may have the value of discouraging the offender and others from engaging in future misbehavior. In cases of minor disciplinary violations, the particular form of punishment may also be designed to draw upon the educational resources of the University in order to bring about a lasting and reasoned change in behavior. The underlying rationale for punishment need not rest on deterrence or "reform" alone, however. A just punishment may also be imposed because it is "deserved" and because punishment for willful offenses affirms the autonomy and integrity of the offender. The latter concept was expressed by D.J.B. Hawkins in his essay "Punishment and Moral Responsibility" in 7 Modern Law Review 205:

   > The vice of regarding punishment entirely from the points of view of reformation and deterrence lies precisely in forgetting that a just punishment is deserved. The punishment of men then ceases to be essentially different from the training of animals, and the way is open for the totalitarian state to undertake the forcible improvement of its citizens without regard to whether their conduct has made them morally liable to social coercion or not. But merit and demerit, reward and punishment, have a different significance as applied to men and as applied to animals. A dog may be called a good dog or a bad dog, but his goodness or badness can be finally explained in terms of heredity and environment. A man, however, is a person, and we instinctively recognize that he has a certain ultimate personal responsibility for at least some of his actions. Hence merit and demerit, reward and punishment, have an irreducible individual significance as applied to men. This is the dignity and the tragedy of the human person.

   A similar view was expressed by Justice Powell, dissenting in Goss *v. Lopez* (42 L. Ed. 2d 725, 745):

   > Education in any meaningful sense includes the inculcation of an understanding in each pupil of the necessity of rules and obedience thereto. This understanding is no less important than learning to read and write. One who does not comprehend the meaning and necessity of discipline is handicapped not merely in his education but throughout his subsequent life. In an age when the home and church play a diminishing role in shaping the character and value judgments of the young, a heavier responsibility falls upon the schools. When an immature student merits censure for his conduct, he is rendered a disservice if appropriate sanctions are not applied.

2. An effort is made in the Code to use a simplified numbering and lettering system, without use of Roman numerals or subsets of letters and numbers. Any part of the Code can be found by reference to one number and one letter (e.g., Part 10a explains the meaning of expulsion).

3. Culpable conduct should include conscious acts posing a substantial risk or harm to others (e.g. throwing a heavy object out a tenth floor window above a sidewalk). If the act itself, however, is unintended (e.g. one is distracted by a noise while climbing a flight of stairs and drops a heavy object) the individual may have failed to use reasonable care, but is not normally deserving of the moral stigma associated with a "conviction" for a disciplinary offense.

4. Former students may be charged for violations which allegedly occurred during their enrollment at the University.

5. Colleges and Universities are not expected to develop disciplinary regulations which are written with the scope of precision of a criminal code. Rare occasions may arise when conduct is so inherently and patently dangerous to the individual or to others that extraordinary action not specifically authorized in the rules must be taken.

6. The terms "suspension" and "interim suspension" are to be distinguished throughout the Code and are not interchangeable.

7. Disciplinary removal from University housing should be distinguished from administrative removal for violations of the residence contract. The latter does not leave students with a disciplinary record and does not come under the purview of this Code.

8. The standard set forth here represents the minimal procedural protection to be accorded to students charged with most disciplinary violations. Students who are subject to lengthy suspensions or to expulsion may be entitled to more formal procedures, including a hearing with a right to cross-examine the witnesses against them. *Goss v. Lopez*, 419 U.S. 565 (1975).

9. The Supreme Court has recently rejected the theory that state schools are bound by principles of federal administrative law requiring agencies to follow their own regulations. *Board of Curators, University of Missouri v. Horowitz* 55 L.Ed 2d 124, 136. See, generally, "Violation by Agencies of Their Own Regulations" 87 Harvard Law Review 629 (1974).

10. Respondents in disciplinary proceedings may be directed to answer questions concerning their conduct.

    Students who refuse to answer on grounds of the Fifth Amendment privilege may be informed that the hearing panel could draw negative interferences from their refusal which might result in their suspension or dismissal. If the student then elects to answer, his/her statements could not be used against him/her in either state or federal court. *Garrity v. New Jersey*, 385 U.S 493 (1967). See also *Furutani v. Ewigleben*, 297 F. Supp. 1163 (N.D.Cal. 1969).

11. The "controlled substances" or "illegal drugs" prohibited in this section are set forth in Schedules I through V in Article 27, Part 279 of the Annotated Code of Maryland

12. Colleges and universities should be a forum for the free expression of ideas. In the recent past, however, unpopular speakers have been prevented from addressing campus audiences by students who effectively "shouted them down." Both Yale and Stanford Universities have treated such actions (which are to be distinguished from minor and occasional heckling) as serious disciplinary violations. See the "Report from the Committee on Freedom of Expression at Yale University" which is available in the Judicial Programs Office.

    The following language from the Yale report may be used to elaborate upon the intent and scope of Part 9(j) of this Code

    A. "There is no right to protest within a University building in such a way that any University activity is disrupted. The administration, however, may wish to permit some symbolic dissent within a building but outside the meeting room, for example,

a single picket or a distributor of handbills."

B "[A] member of the audience may protest in silent, symbolic fashion, for example, by wearing a black arm band. More active forms of protest may be tolerated such as briefly booing, clapping hands or heckling. But any disruptive activity must stop [and not be repeated] when the chair or an appropriate University official requests silence.

C "Nor are racial insults or any other 'fighting words' a valid ground for disruption or physical attack . . . The banning or obstruction of lawful speech can never be justified on such grounds as that the speech or the speaker is deemed irresponsible, offensive, unscholarly, or untrue."

13. A compilation of published regulations which have been reviewed and approved by the Vice President shall be available for public inspection during normal business hours in the Judicial Programs Office.

14. The "controlled substances" or "illegal drugs" prohibited in this section are set forth in Schedules I through V in Article 27, Part 279 of the Annotated Code of Maryland.

15. This Part and Parts 12 and 13 represent an attempt to give needed guidance to those who are assessing penalties. Moreover the direction of the guidance is toward imposition of more severe disciplinary sanctions in serious cases. Nonetheless, the language concerning "mitigating factors" is broad enough to give decision-makers considerable leeway to "do justice," depending upon the facts in each case. The burden of establishing facts in mitigation should, of course, be upon the respondent.

16. There does not seem to be any rational basis for imposing less severe penalties for attempts than for completed violations. The authors of the Model Penal Code, for example, have written that:

> To the extent that sentencing depends upon the antisocial disposition of the actor and the demonstrated need for a corrective action, there is likely to be little difference in the gravity of the required measures depending on the consummation or the failure of the plan.

See LaFave, Criminal Law Treatise p. 453.

17. These procedures are analogous to those found in the "emergency" disciplinary rules adopted by the Board of Regents in 1971 and are consistent with the formal opinion of the Maryland Attorney General on this subject, dated January 23, 1969. See also *Goss v. Lopez*, 419 U.S. 565 (1975).

Nothing in this provision would prohibit the Vice President from modifying the terms of an interim suspension, so long as the hearing requirement specified in Part 17 was met. For example, a suspended student might be allowed to enter University premises solely for the purpose of attending classes.

18. Staff members in the Judicial Programs Office should endeavor to arrange a balanced presentation before the various judicial boards and may assist both complainants and respondents.

19. This language does not effect any change in previous policy concerning the powers of judicial boards. All board decisions, including those rendered by Conference Boards, shall be treated as recommendations.

20. See annotation one, supra. The deterrent effect of punishment is diminished if the community is unaware of the number and general nature of sanctions imposed. The Director of Judicial Programs may, for example, arrange for publication of the statistical report in the campus press each semester.

21. Boards established pursuant to this section might include modified versions of the present "Greek" or residence hall boards.

22. It is intended that a quorum will consist of three members (out of five). The authority to appoint ad hoc boards should be broadly construed and might be especially useful, for example, when a judicial board or the Senate Committee is charged with hearing a case involving one of its own members. The final determination as to whether a panel is "unable to hear a case" should be within the discretion of the Director of Judicial Programs.

23. The power of confirmation represents a significant grant of authority to the Senate Committee. The committee is presently underutilized and might best contribute to the judicial system by becoming more involved with it. Moreover, confirmation procedures will give committee members direct contact with board members and will also allow the committee to exercise more control over the quality of Judicial Board decisions.

24. Proposed bylaws must be submitted to the Attorney General for review.

25. It could be a public embarrassment for the University to have a student charged with or convicted of a serious crime sit in judgment over other students in disciplinary proceedings. The various state criminal codes are usually so broad and archaic, however, that automatic suspension or removal should not result from any violation of any law (e.g. New York makes it a criminal misdemeanor for anyone "to dance continuously in a dance contest for 12 or more hours without respite")

26. Case referrals should not be limited to members of the "campus community." A student who assaults another person on campus should not escape University judicial action merely because the person assaulted was a visitor (or, as in a recent case, a former student who had just withdrawn from the University).

27. The Director of Judicial Programs may appoint a trained volunteer from the campus community to serve as the complainant. It would be preferable, however, to employ a "community advocate" to present all disciplinary cases.

Several measures in the Code are designed to restore balance in disciplinary proceedings, even in those cases in which the complainant is inexperienced with administrative adjudication:

(a) a hearing officer may be appointed in complex or serious cases. See Part 33(p).

(b) the role of attorneys or advisors may be restricted. See Parts 34 and 35, and Annotation 39.

(c) the "disciplinary conference" procedure is designed to eliminate adversary proceedings in minor cases. See Parts 31-32 and Annotation 29.

28. Staff members may consider the mitigating factors specified in Part 11 to determine the permissible sanction to be imposed if the respondent is found guilty of charges. For example, a student involved in a minor altercation might be charged pursuant to Part 9(a), but referred to a disciplinary conference, thereby precluding the possibility of expulsion or suspension for the alleged misconduct.

29. The hearing procedures specified at Part 33 need not be followed in disciplinary conferences. Instead a disciplinary conference would normally consist of an informal, nonadversarial meeting between the respondent and a staff member in the Judicial Programs Office. Complainants would not be required to participate, unless their personal testimony was essential to the resolution of a dispositive factual issue in the case. Documentary evidence and written statements could be relied upon, so long as respondents are given access to them in advance and allowed to respond to them at the conference. Respondents would also be allowed to bring appropriate witnesses with them and might be accompanied by a representative, who may participate in discussions, although not in lieu of participation by the respondent.

The conference procedure is designed to reduce the steady growth of unnecessary legalism in disciplinary proceedings. The worst features of the adversary system (including the concept that judicial proceedings are a "con test" to be "won by clever manipulation of procedural rules) undermine respect for the rule of law. Colleges and universities can and should be a testing ground for development of carefully reasoned alternatives to current procedural excesses in the larger society."

Procedures comparable to the disciplinary conference (referred to as "structured conversations") are suggested by David L. Kirp in his 1976 article "Proceduralism and Bureaucracy: Due Process in the School Setting" 38 Stanford Law Review 841:

> The benefits of such conversations in the school setting may better be appreciated by contrasting them with the typical due process hearing. Hearings are designed to determine the facts of a particular controversy, and apply predetermined rules to the facts thus found. At that point, the function of the hearing is at an end. The wisdom of the underlying substantive rules has no relevance, nor is broader discussion of grievances generally encouraged, unless it is somehow pertinent to the dispute at hand.

Conversation knows no such limits. It too serves as a vehicle for resolving what are likely to be factually uncomplicated disputes, but it does more than that. It enables students to feel that they are being listened to and may encourage them to raise underlying grievances. It provides administrators with a relatively inexpensive vehicle for monitoring, and hence a basis for reshaping institutional relationships. The outcome of these 'orderly thoughtful conversations' may well be decisions different in their particu-

lars from what might otherwise have been anticipated; repeated conversations which touch upon similar student grievances may ultimately lead disciplinarians to reassess whether control is so vital, and collaboration so improbable, as a means of assuring institutional order.

The conference procedure would not be used in any case which might result in any form of separation from the University. Accordingly, the procedure appears to meet or exceed the due process requirements set forth by the United States Supreme Court for cases involving suspensions of ten days or less. In Goss v. Lopez the Court held:

> We stop short of construing the Due Process Clause to require, countrywide, that hearings in connection with short suspensions must afford the student the opportunity to secure counsel, to confront and cross-examine witnesses supporting the charge, or to call his own witnesses to verify his version of the incident. Brief disciplinary suspensions are almost countless. To impose in each such case even truncated trial-type procedures might well overwhelm administrative facilities in many places and, by diverting resources, cost more than it would save in educational effectiveness. Moreover, further formalizing the suspension process and escalating its formality and adversary nature may not only make it too costly as a regular disciplinary tool but also destroy its effectiveness as part of the teaching process.
>
> On the other hand, requiring effective notice and an informal hearing permitting the student to give his version of the events will provide a meaningful hedge against erroneous action. At least the disciplinarian will be alerted to the existence of disputes about facts and arguments about cause and effect. He may then determine himself to summon the accuser, permit cross-examination, and allow the student to present his own witnesses. In more difficult cases, he may permit counsel. In any event, his discretion will be more informed and we think the risk of error substantially reduced (42 L. Ed. 725, 740).

30. The case file consists of materials which would be considered "education records," pursuant to the Family Educational Rights and Privacy Act. Personal notes of University staff members or complainants are not included.

31. Determinations made in accordance with Parts 31 and 32 are not appealable.

32. Internal subpoenas may be desirable, since cases have arisen in which complainants or respondents were unable to present an effective case due to the indifference and lethargy of potential witnesses. A student who refused to respond to a subpoena may be charged with a violation of Part 9(n) of the Code.

    The Director of Judicial Programs should not approve a subpoena unless the expected testimony would be clearly relevant. Likewise, a subpoena designed to embarrass or harass a potential witness should not be authorized.

    The subpoena power specified here is not designed to reach documents or other materials.

33. Board members should be disqualified on a case basis only; permanent removal should be accomplished in accordance with Part 26. Board members should not be readily disqualified. The term "personal bias" involves animosity toward a party or favoritism toward the opposite party. See, generally, Davis, Administrative Law Treatise "Bias" Section 12.03.

34. The exclusionary rule generally does not apply to civil administrative proceedings. Furthermore, the University of Maryland is exempted by statute from the applicable portions of the Administrative Procedure Act. The Maryland Court of Appeals, however, has barred evidence from administrative proceedings where a respondent establishes that officials were improperly motivated to illegally seize the evidence. See *Sheetz v. City of Baltimore*, 315 Md. 208 (1989).

35. Testimony containing hearsay may be heard, if relevant. A final determination should not be based on hearsay alone.

36. Every statement or assertion need not be proven. For example, board members may take notice that many students commute to the University.

37. Student presiding officers are often at a disadvantage when the respondent is represented by an attorney. The proceedings might progress more rapidly and efficiently if a special presiding officer were appointed. Generally, a staff member in the Judicial Programs Office would be selected for such a responsibility, although other University employees with legal training might also be called upon.

38. Information pertaining to prior findings of disciplinary and residence hall violations might be reported, as well as relevant criminal convictions. Prior allegations of misconduct should not be disclosed.

39. The dynamics of a judicial hearing in a university setting are not the same as those of a courtroom. Strict adherence to the conventions of courtroom advocacy may not be in the best interest of clients in university judicial proceedings.

    The presiding officer and the board advisor are authorized to take reasonable measures to maintain control over the proceedings in order to elicit relevant facts, to prevent the harassment of participants, to insure that proceedings are not disrupted and the interests of fairness are served. This may include regulating the timing, length and manner of presentations and objections, declaring recesses in the proceedings, and other appropriate actions. Presiding officers should have training and experience appropriate to the demands of the office.

    Before hearings, presenters for both complainants and respondents shall be presented with a written statement approved by the Senate Adjunct Committee on Student Conduct regarding their rights and obligations during hearings and the powers of the presiding officer to control behavior in hearings.

40. Punishment of one or several individuals for the acts of others should be avoided if the identities of the specific offenders can be readily ascertained.

41. Association does not require formal membership. Individuals who might reasonably be regarded as regular participants in group or organization activities may be held to be associated with the group or organization.

42. Leaders or spokespersons need not be officially designated or elected. For example, if a group or organization accepted or acquiesced in the act or statement of an individual associated with it, that individual might reasonably be regarded as a leader or a spokesman for the group or organization.

43. "Suspension" includes deferred suspension but not interim suspension or suspension which is withheld. See Annotation 6.

44. Students left with a disciplinary record after a disciplinary conference may request that their record be voided, in accordance with Part 49. Denials may be appealed, pursuant to Part 50.

45. The decision will be "final and conclusive" on the part of the judicial board, but will remain a recommendation to the Director of Judicial Programs.

46. This Part is intended to discourage frivolous appeals. Respondents who are genuinely interested in pursuing an appeal can reasonably be expected to prepare a written brief.

47. Appellate bodies which do not give deference (i.e., a presumption of validity) to lower board decisions will distort the entire disciplinary system. Respondents would be encouraged to "test their strategy" and "perfect their technique" before lower boards, since the matter would simply be heard again before a "real" board with final authority.

    Lower board members usually have the best access to the evidence, including an opportunity to observe the witnesses and to judge their demeanor. Members of appellate bodies should be especially careful not to modify a sanction or to remand or dismiss a case simply because they may personally disagree with the lower board's decision.

48. Respondents who obtain information at the hearing which might lead to new evidence are required to request an adjournment rather than wait to raise the matter for the first time on appeal.

49. An arbitrary and capricious decision would be a decision "unsupported by any evidence." The cited language has been adopted by the Federal Courts as the proper standard of judicial review, under the due process clause, of disciplinary determinations made by the state boards or agencies. See McDonald v. *Board of Trustees of the University of Illinois*, 375 F Supp. 95, 108 (N.D. Ill., 1974).

50. See Annotation 19.

51. Voided files will be so marked, shall not be kept with active disciplinary records, and shall not leave any student with disciplinary record.

52. Disciplinary records may be reported to third parties, in accordance with University regulations and applicable state and federal law.

53. Void records shall be treated in the manner set forth in Annotation 51

54 The scope of review shall be limited to the factors specified at Part 49 An inquiry into the initial determination of guilt or innocence is not permitted. For example, when considering the "nature" of the violation, pursuant to Part 49 (c), it is to be assumed that the violation occurred and that the respondent was responsible for it.

55. Some discretion must be retained to void even "permanent" disciplinary records. It may be unnecessary, for example, to burden a graduating senior with a lifelong stigma for an act committed as a freshman. Social norms also change rapidly. "Unacceptable" conduct in one generation may become permissible and commonplace in the next.

*** See the procedures for mandatory medical withdrawal developed by the Vice President for Student Affairs.**

**** See Macklin Fleming, The Price of Perfect Justice: "in our pursuit of . . perfectibility, we necessarily neglect other elements of an effective procedure, notably the resolution of controversies within a reasonable time at a reasonable cost, with reasonable uniformity . . . we impair the capacity of the legal order to achieve the basic values for which it is created, that is, to settle disputes promptly and peaceably, to restrain the strong, to protect the weak, and to conform the conduct of all the settled rules of law."**

***** See the due process standard set forth in *Dixon v. Alabama*, 294 F.2nd 150, 158-159 (Fifth Cir., 1961), Cert. den 368 U.S. 930.**

Appendix D: University Policy on Disclosure of Student Records

Buckley Amendment

The University of Maryland adheres to a policy of compliance with the Family Educational Rights and Privacy Act (Buckley Amendment). As such, it is the policy of the University (1) to permit students to inspect their education records, (2) to limit disclosure to others of personally identifiable information from education records without students' prior written consent, and (3) to provide students the opportunity to seek correction of their education records where appropriate.

I. Definitions

A. "Student" means an individual who is or who has been in attendance at The University of Maryland. It does not include any applicant for admission to the University who does not matriculate, even if he or she previously attended the University. (Please note, however, that such an applicant would be considered a "student" with respect to his or her records relating to that previous attendance.)

B. "Education records" include those records that contain information directly related to a student and that are maintained as official working files by the University. The following are not education records:

(1) records about students made by professors and administrators for their own use and not shown to others;

(2) campus police records maintained solely for law enforcement purposes and kept separate from the education records described above and not shown to others;

(3) employment records, except where a currently enrolled student is employed as a result of his or her status as a student;

(4) records of a physician, psychologist, or other recognized professional or paraprofessional made or used only for treatment purposes and available only to persons providing treatment. However, these records may be reviewed by an appropriate professional of the student's choice;

(5) records that contain only information relating to a person's activities after that person is no longer a student at the University.

II. It is the policy of The University of Maryland to permit students to inspect their education records.

A. Right of Access

Each student has a right of access to his or her education records, except confidential letters of recommendation received prior to January 1, 1975, and financial records of the student's parents.

B. Waiver

A student may, by a signed writing, waive his or her right of access to confidential recommendations in three areas: admission to any educational institution, job placement, and receipt of honors and awards. The University will not require such waivers as a condition for admission or receipt of any service or benefit normally provided to students. If the student chooses to waive his or her right of access, he or she will be notified, upon written request, of the names of all persons making confidential recommendations. Such recommendations will be used only for the purpose for which they were specifically intended. A waiver may be revoked in writing at any time, and the revocation will apply to all subsequent recommendations, but not to recommendations received while the waiver was in effect.

C. Types and Locations of Education Records, Titles of Records Custodians

Please note that all requests for access to records should be routed through the Registrations Office (see II.D. below).

(1) **Admissions**
Applications and transcripts from institutions previously attended.
a. Undergraduate|Director of Undergraduate Admissions, Mitchell Building
b. Graduate|Director of Graduate Records, Lee Building

(2) **Registrations**
All ongoing academic and biographical records. Graduate and Undergraduate|Director of Registrations, Mitchell Building.

(3) **Departments**
Departmental offices; Chairs (Check first with the Director of Registrations). (Miscellaneous records kept vary with the department.)

(4) **Deans**
Deans' offices of each school. Miscellaneous records.

(5) **Resident Life**
Mitchell Building, Director of Resident Life. Students' housing records.

(6) **Advisors**
Pre-Law Advisor: Hornbake Library
Pre-Dental Advisor: Turner Laboratory
Pre-Medical Advisor: Turner Laboratory
Letters of evaluation, personal information sheet, transcript, test scores (if student permits).

(7) **Judicial Affairs**
Mitchell Building, Director of Judicial Affairs. Students' judicial and disciplinary records.

(8) **Counseling Center**
Shoemaker Hall, Director. Biographical data, summaries of conversations with students, test results. (Where records are made and used only for treatment purposes, they are not education records and are not subject to this policy.)

(9) **Financial Aid**
Undergraduate Mitchell Building, Director of Financial Aid. Graduate and Professional Schools Located in deans' offices. Financial aid applications, needs analysis statements, awards made (no student access to parents' confidential statements).

(10) **Career Development Center**
Undergraduate Library, Director. Recommendations, copies of academic records (unofficial). (Note WAIVER section.)

(11) **Business Services**
Lee Building, Director. All student accounts receivable, records of students' financial charges, and credits with the University.

D. Procedure to be Followed

Requests for access should be made in writing to the Office of Registrations. The University will comply with a request for access within a reasonable time, at least within 45 days. In the usual case, arrangements will be made for the student to read his or her records in the presence of a staff member. If facilities permit, a student may ordinarily obtain copies of his or her records by paying reproduction costs. The fee for copies is $.25 per page. No campus will provide copies of any transcripts in the student's records other than the student's current University transcript from that campus. Official University transcripts (with University seal) will be provided at a higher charge.

III. It is the policy of The University of Maryland to limit disclosure of personally identifiable information from education records unless it has the student's prior written consent, subject to the following limitations and exclusions.

A. Directory Information

(1) The following categories of information have been designated directory information:
Name
Address
Telephone listing
Date and place of birth
Photograph
Major field of study
Participation in officially recognized activities and sports
Weight and height of members of athletic teams
Dates of attendance
Degrees and awards received
Most recent previous educational institution attended

(2) This information will be disclosed even in the absence of consent unless the student files written notice requesting the University not to disclose any or all of the categories within three weeks of the first day of the semester in which the student begins each school year. This notice must be filed annually within the above allotted time to avoid automatic disclosure of directory information. The notice should be filed with the campus Registrations Office. See II.C.

(3) The University will give annual public notice to students of the categories of information designated as directory information.

(4) Directory information may appear in public documents and otherwise be disclosed without student consent unless the student objects as provided above.

(5) All requests for non-disclosure of directory information will be implemented as soon as publication schedules will reasonably allow.

(6) The University will use its best efforts to maintain the confidentiality of those categories of directory information that a student properly requests not be publicly disclosed. The University, however, makes no representations, warranties, or guarantees that directory information designated for non-disclosure will not appear in public documents.

B. Prior Consent not Required

Prior consent will not be required for disclosure of education records to the following parties:

(1) School officials of The University of Maryland who have been determined to have legitimate educational interests;
(a) "School officials" include instructional or administrative personnel who are or may be in a position to use the information in furtherance of a legitimate objective;
(b) "Legitimate educational interests" include those interests directly related to the academic environment;

(2) Officials of other schools in which a student seeks or intends to enroll or is enrolled. Upon request, and at his or her expense, the student will be provided with a copy of the records that have been transferred;

(3) Authorized representatives of the Comptroller General of the U.S., the Secretary of Education, the Secretary of the Department of Health and Human Services, the Director of the National Institute of Education, the Administrator of the Veterans' Administration, but only in connection with the audit or evaluation of federally supported education programs, or in connection with the enforcement of or compliance with Federal legal requirements relating to these programs. Subject to controlling Federal law or prior consent, these officials will protect information received so as not to permit personal identification of students to outsiders and destroy such information when it is no longer needed for these purposes;

(4) Authorized persons and organizations that are given work in connection with a student's application for, or receipt of, financial aid, but only to the extent necessary for such purposes as determining eligibility, amount, conditions, and enforcement of terms and conditions;

(5) State and local officials to which such information is specifically required to be reported by effective state law adopted prior to November 19, 1974;

(6) Organizations conducting educational studies for the purpose of developing, validating, or administering predictive tests, administering student aid programs, and improving instruction. The studies shall be conducted so as not to permit personal identification of students to outsiders, and the information will be destroyed when no longer needed for these purposes;

(7) Accrediting organizations for purposes necessary to carry out their functions;

(8) Parents of a student who is a dependent for income tax purposes. (Note: The University may require documentation of dependent status such as copies of income tax forms.)

(9) Appropriate parties in connection with an emergency, where knowledge of the information is necessary to protect the health or safety of the student or other individuals;

(10) In response to a court order or subpoena, the University will make reasonable efforts to notify the student before complying with the court order.

C. Prior Consent Required

In all other cases, the University will not release personally identifiable information in education records or allow access to those records without prior consent of the student. Unless disclosure is to the student himself or herself, the consent must be written, signed, and dated, and must specify the records to be disclosed, the identity of the recipient, and the purpose of disclosure. A copy of the record disclosed will be provided to the student upon request and at his or her expense.

D. Record of Disclosures

The University will maintain with the student's education records a record for each request and each disclosure, except for the following:

(1) disclosures to the student himself or herself;

(2) disclosures pursuant to the written consent of the student (the written consent itself will suffice as a record);

(3) disclosures to instructional or administrative officials of the University;

(4) disclosures of directory information. This record of disclosures may be inspected by the student, the official custodian of the records, and other University and governmental officials.

IV. It is the policy of The University of Maryland to provide students the opportunity to seek correction of their education records.

A. Request to Correct Records

A student who believes that information contained in his or her education records is inaccurate, misleading, or violative of privacy or other rights may submit a written request to the Office of Registrations specifying the document(s) being challenged and the basis for the complaint. The request will be sent to the person responsible for any amendments to the record in question. Within a reasonable period of time of receipt of the request, the University will decide whether to amend the records in accordance with the request. If the decision is to refuse to amend, the student will be so notified and will be advised of the right to a hearing. He or she may then exercise that right by written request to the Office of the Chancellor.

B. Right to a Hearing

Upon request by a student, the University will provide an opportunity for a hearing to challenge the content of the student's records. A request for a hearing should be in writing and submitted to the Office of Registrations. Within a reasonable time of receipt of the request, the student will be notified in writing of the date, place, and time reasonably in advance of the hearing.

(1) Conduct of the Hearing

The hearing will be conducted by a University official who does not have a direct interest in the outcome. The student will have a full and fair opportunity to present evidence relevant to the issues raised and may be assisted or represented by individuals of his or her choice at his or her own expense, including an attorney.

(2) Decision

Within a reasonable period of time after the conclusion of the hearing, the University will notify the student in writing of its decision. The decision will be based solely upon evidence presented at the hearing and will include a summary of the evidence and the reasons for the decision. If the University decides that the information is inaccurate, misleading, or otherwise in violation of the privacy or other rights of the student, the University will amend the records accordingly

C. Right to Place an Explanation in the Records

If, as a result of the hearing, the University decides that the information is not inaccurate, misleading, or otherwise in violation of the student's rights, the University will inform the student of the right to place in his or her record a statement commenting on the information and/or explaining any reasons for disagreeing with the University's decision. Any such explanation will be kept as part of the student's record as long as the contested portion of the record is kept and will be disclosed whenever the contested portion of the record is disclosed.

V. Right to File Complaint

A student alleging University noncompliance with the Family Educa-

tional Rights and Privacy Act may file a written complaint with the Family Educational Rights and Privacy Act Office (FERPA), Department of Education, Switzer Building, 400 Maryland Avenue, S.W., Room 4074, Washington, D.C. 20202.

Appendix E: Smoking Policy and Guidelines

Effective Spring Semester 1986

Policy

It is hereby established as the policy of the College Park Campus to achieve a public environment as close to smoke-free as practicably possible. Obtaining and maintaining this result will require the willingness, understanding, and patience of all members of the campus community working together.

Guidelines

The following guidelines shall serve to implement the Campus Smoking Policy:

A. **Smoking is prohibited in indoor locations where smokers and non-smokers occupy the same area.** Such areas include:
   1. Academic areas: classrooms, lecture halls, seminar rooms, laboratories, libraries, computing facilities.
   2. Conference rooms, auditorium, exhibition areas, indoor athletic facilities, theaters, pavilions, and retail stores.
   3. Health facilities.
   4. Common/public areas (shared spaces not fully enclosed by floor-to-ceiling partitions and doors) including: stairwells, elevators, escalators, lobbies, hallways, waiting rooms, reception areas, restrooms, and customer service areas.
   5. Any area in which a fire or safety hazard exists.

B. **Unit heads, or their designees, may establish the following locations as "Smoking Permitted Areas":**
   1. Up to one-third of dining, large lounge, and other large open spaces, as long as ventilation is adequate. Smoking of cigars and pipes, however, is prohibited.
   2. Rooms that have closed doors and floor-to-ceiling partitions as long as ventilation is adequate and non-smokers in adjacent areas are not exposed to second hand or side-stream smoke.
   3. The Director of the Stamp Student Union may, at his/her discretion, allow groups and organizations with permanent offices in the Union to determine the smoking policy in those offices. Such individual policies must adhere to the restrictions set forth in Section III, B, 2 of this policy.

      The Director of the Stamp Student Union may, at his/her discretion, allow cigarette smoking by groups making use of the Grand Ballroom, the Colony Ballroom, the Atrium, and other rooms in the Union if he/she determines that it is appropriate to the nature of the event scheduled.

C. **As a general rule, preferential consideration shall be given to non-smokers whenever it is clear that they are being exposed involuntarily to smoke.**

Appendix F: Academic Integrity

The academic regulations and requirements of The University of Maryland College Park are designed to provide and enhance a maximum educational environment for the entire campus academic community. The success of the design depends upon the mutual respect, courteous treatment, and consideration of everyone involved. The following statements contain procedures and expectations for both faculty and students. For questions about the interpretation of these statements, students should contact their academic advisor, department chair, or dean.

Resolution on Academic Integrity

Approved by Board of Regents: May 8, 1981

WHEREAS, it is the responsibility of The University of Maryland to maintain integrity in teaching and learning as a fundamental principle on which a university is built; and

WHEREAS, all members of the University community share in the responsibility for academic integrity; therefore

BE IT RESOLVED, that The University of Maryland Board of Regents hereby adopts the following Statement of Faculty, Student and Institutional Rights and Responsibilities for Academic Integrity.

Statement of Faculty, Student and Institutional Rights and Responsibilities for Academic Integrity

Preamble

At the heart of the academic enterprise are learning, teaching, and scholarship. In universities these are exemplified by reasoned discussion between student and teacher, a mutual respect for the learning and teaching process, and intellectual honesty in the pursuit of new knowledge. In the traditions of the academic enterprise, students and teachers have certain rights and responsibilities which they bring to the academic community. While the following statements do not imply a contract between the teacher or the University and the student, they are nevertheless conventions which the University believes to be central to the learning and teaching process.

Faculty Rights and Responsibilities

1. Faculty shall share with students and administration the responsibility for academic integrity.
2. Faculty are accorded freedom in the classroom to discuss subject matter reasonably related to the course. In turn they have the responsibility to encourage free and honest inquiry and expression on the part of students.
3. Faculty are responsible for the structure and content of their courses, but they have the responsibility to present courses that are consistent with their descriptions in the University catalog. In addition, faculty have the obligation to make students aware of the expectations in the course, the evaluation procedures, and the grading policy.
4. Faculty are obligated to evaluate students fairly and equitably in a manner appropriate to the course and its objectives. Grades shall be assigned without prejudice or bias.
5. Faculty shall make all reasonable efforts to prevent the occurrence of academic dishonesty through the appropriate design and administration of assignments and examinations, through the careful safeguarding of course materials and examinations, and through regular reassessment of evaluation procedures.
6. When instances of academic dishonesty are suspected, faculty shall have the right and responsibility to see that appropriate action is taken in accordance with University regulations.

Student Rights and Responsibilities

1. Students shall share with faculty and administration the responsibility for academic integrity.
2. Students shall have the right of inquiry and expression in their courses without prejudice or bias. In addition, students shall have the right to know the requirements of their courses and to know the manner in which they will be evaluated and graded.
3. Students shall have the obligation to complete the requirements of their courses in the time and manner prescribed and to submit to evaluation of their work.
4. Students shall have the right to be evaluated fairly and equitably in a manner appropriate to the course and its objectives.
5. Students shall not submit as their own work any work which has been prepared by others. Outside assistance in the preparation of this work, such as librarian assistance, tutorial assistance, typing assistance, or such assistance as may be specified or approved by the instructor is allowed.
6. Students shall make all reasonable efforts to prevent the occurrence of academic dishonesty. They shall by their own example encourage academic integrity and shall themselves refrain from acts of cheating and plagiarism or other acts of academic dishonesty.
7. When instances of academic dishonesty are suspected, students shall have the right and responsibility to bring this to the attention of the faculty or other appropriate authority.

Institutional Responsibility

1. Campuses or appropriate administrative units of The University of Maryland shall take appropriate measures to foster academic integrity in the classroom.
2. Campuses or appropriate administrative units shall take steps to define acts of academic dishonesty, to ensure procedures for due process for students accused or suspected of acts of academic dishonesty, and to impose appropriate sanctions on students guilty of acts of academic dishonesty.
3. Campuses or appropriate administrative units shall take steps to determine how admission or matriculation shall be affected by acts of academic dishonesty on another campus or at another institution. No student suspended for disciplinary reasons at any campus of The University of Maryland shall be admitted to any other University of Maryland campus during the period of suspension.

AND, BE IT FURTHER RESOLVED, that campuses or appropriate administrative units of the University of Maryland will publish the above Statement of Faculty, Student and Institutional Rights and Responsibilities for Academic Integrity in faculty handbooks and in student handbooks and catalogs; and

BE IT FURTHER RESOLVED, that the Board of Regents hereby directs each campus or appropriate administrative unit to review existing procedures or to implement new procedures for carrying out the institutional responsibilities for academic integrity cited in the above Statement; and

BE IT FINALLY RESOLVED, that the Board of Regents hereby directs each campus or appropriate administrative unit to submit to the President or his designee for approval the campus' or unit's procedure for implementation of the institutional responsibility provisions of the above Statement.

Appendix G: Statute of Limitations for the Termination of Degree Programs

The following policies apply to all undergraduate degree programs terminated at the University of Maryland College Park at the beginning of the Spring, 1990 Semester and thereafter.

1. All students enrolled at the University of Maryland College Park or at a Maryland community college program articulated with the terminated degree program during the semester in which the program is terminated must complete the major requirements of the terminated degree program within five calendar years of the date upon which the program is terminated. If only a few students are enrolled in a terminated program, a shorter time limit may be imposed based on a study of the academic records of all students enrolled in the program. If a shorter time period is imposed, all students enrolled in the program will be notified of its length.
2. Students who, prior to the termination date had been enrolled in the terminated program or a Maryland community college articulated with the terminated program, but who subsequently interrupt their studies at the University of Maryland College Park or the community college for one or more semesters will be allowed to enter or re-enter the program only if a careful analysis of their records by the appropriate dean indicates they will be able to complete the major requirements of the terminated program within the remaining time period specified.
3. When a program is terminated the University of Maryland College Park will make a good faith effort to notify those students who had interrupted their studies in that program. As part of that good faith effort, the University of Maryland College Park will publish in its re-enrollment forms, catalogues, and schedules of classes a statement advising returning students that programs may have been terminated and that the student needs to check the current status of the program.
4. At the end of the time period specified for completion of major requirements after the termination date of the program, the relevant department or college will evaluate the records of each student enrolled in the program for fulfillment of departmental major requirements and will notify students whether they have completed these requirements. Such notice shall be in writing and sent to the student's last known addresses.
5. When a degree program is terminated, the University will send notification of the time limit for completion of the major requirements to all students enrolled in the program at that time. It will also attempt to send notification to students who interrupted their studies while enrolled in the program in the preceding three years, insofar as such students can reasonably be identified. This notification will be sent to the students' last known addresses on file with the University. Such notifications also will be sent to the Maryland community colleges having programs articulated with the terminated program.

Adjunct Committee on Academic Standards and Procedures
Approved December 7, 1989

Appendix H: Policy for Student Residency Classification for Admission, Tuition and Charge-Differential Purposes

(Approved by the Board of Regents, August 28, 1990)

I. Policy

It is the policy of the Board of Regents of the University of Maryland System to recognize the categories of in-state and out-of-state students for purposes of admission, tuition, and charge differentials at those institutions where such differentiation has been established. The student is responsible for providing the information necessary to establish eligibility for in-state status.

A. Students who are financially independent or financially dependent, as hereinafter defined, shall have their residency classification determined on the basis of permanent residency. For purposes of this policy, a permanent residence is a person's permanent place of abode as determined by the following criteria. Such students will be assigned in-state status for admission, tuition, and charge differential purposes only if the student (if financially independent) or the student's parent, guardian or spouse (in the case of a financially dependent student):

   1. Owns or rents and occupies living quarters in Maryland. There must exist a genuine deed or lease in the individual's name, reflecting payments/rents and terms typical of those in the community at the time executed. Persons not having such a lease may submit an affidavit reflecting payments/rents and terms, as well as the name and address of the person to whom payments are made which may be considered as meeting this condition. As an alternative to ownership or rental of living quarters in Maryland, a student may share living quarters in Maryland which are owned or rented and occupied by a parent, legal guardian, or spouse;

   2. Maintains within Maryland substantially all personal property;

   3. Pays Maryland income tax on all earned taxable income, including all taxable income earned outside the State;

   4. Registers all owned motor vehicles in Maryland in accordance with Maryland law;

   5. Possesses a valid Maryland driver's license, if licensed, in accordance with Maryland law;

   6. Is registered in Maryland, if registered to vote;

   7. Receives no public assistance from a state other than the State of Maryland or from a city, county or municipal agency other than one in Maryland; and

   8. Has a legal ability under federal and Maryland law to reside permanently without interruption in Maryland.

B. In addition to meeting all of the criteria set forth in the preceding section, to qualify for in-state status on the basis of permanent residence, a student or, if the student is financially dependent, the parent, legal guardian, or spouse, must have resided in Maryland for at least twelve (12) consecutive months immediately prior to and including the last date available for late registration for the forthcoming semester or session and must have continuously resided in Maryland during that period.

C. If a student is financially dependent as hereinafter defined, the permanent residence of the parent, guardian, or spouse on whom

he/she is dependent shall determine in-state status. If a student is financially independent, the permanent residence of the student shall determine in-state status.

D. In-state status based on permanent residence is lost at any time a financially independent student establishes a permanent residence outside the State of Maryland. If the parent, guardian, or spouse through whom a financially dependent student has attained in-state status establishes a permanent residence outside the State of Maryland, the in-state status is lost. In each instance, the student will then be assess out-of-state tuition and charges beginning the next semester or session.

E. In addition, the following categories of students shall have in-state status:

1. A full-time or part-time (at least 50 percent time) permanent employee of the University of Maryland System;

2. The spouse or dependent child of a full-time or part-time (at least 50 percent time) permanent employee of the University of Maryland System;

3. A full-time active member of the Armed Forces of the United States whose home of residency is Maryland or one who resides or is stationed in Maryland, or the spouse or a financially dependent child of such a person; and

4. A graduate assistant.

F. Students not entitled to in-state status under the preceding paragraphs shall be assigned out-of-state status for admission, tuition, and charge-differential purposes.

II. Procedures

A. The date on which conditions for in-state classification must be met is the last published date to register for the forthcoming semester or session. In those instances where an entering class size is established and where an application deadline is stated, institutions may require that conditions for in-state classification must be satisfied as of the announced closing application date.

B. A change in status must be requested in writing by a student prior to the last published date of registration in order to be effective for that semester or session. A student applying for a change to in-state status must furnish appropriate documentation as required by the institution.

C. The student shall notify the institution in writing within fifteen (15) days of any change of circumstances which may alter in-state status.

D. In the event incomplete, false, or misleading information is presented, the institution may, at its discretion, revoke an assignment of in-state status in addition to other disciplinary actions provided for by the institution's policy.

E. Each institution of the University of Maryland System shall develop and publish additional procedures to implement this policy. Procedures shall provide that on request the President or designee has the authority to waive any residency requirement as set forth in IA and IB, if it is determined that the student is, indeed, a permanent resident, and application of the criteria creates an unjust result. Such procedures must provide for appeal to the President or designee of any residency determination using a system wide petition form (Appendix A). These procedures shall be filed with the Office of the Chancellor.

III. Definitions

A. Financially Dependent: For purposes of this policy, a financially dependent student is one who is claimed as a dependent for tax purposes, or who receives more than one-half of his or her support from a parent, legal guardian, or spouse during the twelve (12) month period immediately prior to the last published date for registration for the semester or session. If a student receives more than one-half of his or her support in the aggregate from a parent and/or legal guardian and/or spouse, the student shall be considered financially dependent on the person providing the greater amount of support.

B. Financially Independent: A financially independent student is one who (1) declares himself or herself to be financially independent as defined herein, (2) does not appear as a dependent on the Federal or State income tax return of any other person; (3) receives less than one-half of his or her support from any other person or persons; and (4) demonstrates that he or she provides through self-support one-half or more of his or her total expenses.

C. Parent: A parent may be a natural parent, or, if established by a court order recognized under the law of the State of Maryland, an adoptive parent.

D. Guardian: A guardian is a person so appointed by a court order recognized under the law of the State of Maryland.

E. Spouse: A spouse is a partner in a legally contracted marriage.

F. Support: (1) Except as set forth in (2) below, support shall mean financial or material support, including gifts, services, and trusts, including income or benefits derived from one's family. (2) Support shall not include grants, stipends, awards, and benefits (including Federal and State student aid, grants, and loans) received for the purpose of education or by virtue of an individual's status or prospective status as a student. Such resource shall not be considered in calculating a student's financial dependence or independence.

Appendix I: Undergraduate Student Grievance Procedure

***The Undergraduate Student Grievance Procedure is currently being revised by the Campus Senate to reflect the recent reorganization of the academic units at College Park. The following interim procedure is to be in effect until such time as the procedure is revised by the Campus Senate. For the nondepartmentalized colleges, the dean for Undergraduate Studies shall assume the responsibilities formerly held by the division provost. For the departmentalized colleges, the dean of the College shall assume the responsibilities formerly held by the division provost.**

Approved by Board of Regents: April 14, 1981

I. Purpose

The following procedure provides a means for an undergraduate student to present a complaint resulting from a believed violation of the "Expectations of Faculty and Academic Units," set forth in Section II, below, to have that complaint examined as a matter of regular procedure, and to receive a final determination thereon. This procedure offers a vehicle for seeking redress with respect to acts or omissions of individual faculty members, or of an academic department/program/ or college. Redress may be sought under this procedure without fear of reprisal or discrimination.

II. Scope of Grievances: Expectations of Faculty and Academic Units

The academic regulations and requirements of the College Park campus are designed to provide and enhance a maximum educational environment for the entire campus academic community. The success of the design depends upon the mutual respect, courteous treatment, and consideration of everyone involved.

A. The following are considered to be reasonable student expectations of faculty:
   1. A written description at the beginning of each undergraduate course specifying in general terms the content, nature of assignments, examination procedures, and the bases for determining final grades. In cases where all or some of this information cannot be provided at the beginning of the course, a clear explanation of the delay and the bases of course development shall be provided;
   2. Reasonable notice of major papers and examinations in the course;
   3. A reasonable number of recitations, performances, quizzes,

tests, graded assignments and/or student/instructor conferences to permit evaluation of student progress throughout the course;

4. Unless prohibited by statute or contract, a reasonable opportunity to review papers and examinations after evaluation by the instructor, while the materials remain reasonably current;
5. A reasoned approach to the subject which attempts to make the student aware of the existence of different points of view;
6. Reasonable access to the instructor during announced regular office hours or by appointment;
7. Regular attendance by assigned faculty and reasonable adherence to published campus schedules and location of classes and examinations. Classes not specified in the schedules are to be arranged at a mutually agreeable time on campus, unless an off-campus meeting is clearly justified.
8. Reasonable confidentiality of information gained through student-faculty contact.
9. Public acknowledgment of significant student assistance in the preparation of materials, articles, books, devices and the like.
10. Assignment of materials to which all students can reasonably be expected to have access.

B. The academic units (programs, departments, colleges, schools) in cooperation with the Office of the Dean for Undergraduate Studies and the Office of Records and Registrations shall, whenever possible, provide the following:
   1. Accurate information on academic requirements through designated advisors and referral to other parties for additional guidance.
   2. Specific policies and procedures for the award of academic honors and awards, and the impartial application thereof.
   3. Equitable course registration in accordance with University policy and guidelines.

C. The scope of the matters which may constitute a grievance cognizable under this Undergraduate Student Grievance Procedure is limited to believed violations of the expectations of faculty and academic units set forth above in paragraphs A and B of this section.

III. Human Relations Code/Alternative Grievance Procedures

A Human Relations Code, with an implementing Office of Human Relations Programs, presently exists for the campus. The Undergraduate Student Grievance Procedure and the Human Relations Code may not be used simultaneously or consecutively with one another with respect to the same (or substantially the same) issue/complaint or with respect to issues/complaints arising out of or pertaining to the same set of facts. The procedures of the Human Relations Code and/or of any other University grievance/review process may not be utilized to challenge the procedures, actions, determinations or recommendations of any person(s) or board(s) acting pursuant to the authority and/or requirements of the Undergraduate Student Grievance Procedure.

IV. General Limitations

Notwithstanding any provision of this Undergraduate Student Grievance Procedure to the contrary, the following matters do not constitute the basis for a grievance and are not susceptible of challenge thereby:

A. Policies, regulations, decisions, resolutions, directives and other acts of the Board of Regents of The University of Maryland, of the Office of the President of The University of Maryland, and of the Chancellor of The University of Maryland College Park.
B. Any statute or any regulation, directive or order of any department or agency of the United States or the State of Maryland, and any other matter outside of the control of The University of Maryland.
C. Course offerings.
D. The staffing and structure of any academic department or program.
E. The fiscal management of The University of Maryland, and the allocation of University resources.
F. Any issue(s)/act(s) which does not affect the complaining party personally and directly.
G. Matters of academic judgment relating to an evaluation of a student's academic performance and/or of his/her academic qualifications; except that the following matters of a procedural nature may be reviewed under this Undergraduate Student Grievance Procedure if filed as a formal grievance within thirty (30) days of the first meeting of the course to which they pertain:
   1. Whether reasonable notice has been given as to the relative value of all work considered in determining the final grade and/or assessment of performance in the course[e.g., the relative value of examinations, papers, laboratories and other academic exercises and requirements. The remedy with respect to a grievance based upon this subsection shall be the giving of notice by the faculty member.
   2. Whether a reasonably sufficient number of examinations, papers, laboratories and/or other academic exercises and requirements have been scheduled to present the student with a reasonable opportunity to demonstrate his/her academic merit. The remedy with respect to a grievance based upon this subsection shall be the scheduling of such additional academic exercises as the faculty member, in consultation with the Dean and upon consideration of the written opinion of the College hearing board, shall deem appropriate.

Notwithstanding any language in this paragraph or elsewhere in this Undergraduate Student Grievance Procedure, nothing herein shall be construed to permit a challenge, either directly or indirectly, to the award of a specific grade.

No recommendation or decision may be made pursuant to the Undergraduate Student Grievance Procedure which conflicts with or modifies, directly or indirectly, any policy, statute, regulation or other matter set forth in paragraphs A and B of this section.

"Class" grievances and concomitant remedies are not cognizable; however, a screening or hearing board may, in its discretion, consolidate grievances presenting similar facts and issues, and recommend such generally applicable relief as it deems warranted.

V. Finality

A student who elects to utilize the Undergraduate Student Grievance Procedure agrees that in doing so he/she shall abide by the final disposition arrived at thereunder, and shall not subject this disposition to review under any other procedure within the University. For the purpose of this limitation, a student shall be deemed to have elected to utilize the Undergraduate Student Grievance Procedure when he/she files a written grievance as set forth in section VI.A.2. and VI.B. below.

VI. Procedure

A. Grievance Against Faculty Member, Academic Department, Program or College
   1. **Resolution of grievance by informal means.**
      The initial effort in all cases shall be to achieve a resolution of the grievance through the following informal means:
      a. In the case of a grievance against an individual faculty member, the student should first contact the member, present the grievance in its entirety, and attempt a complete resolution; if any portion of the grievance thereafter remains unresolved, the student may present such part to the immediate administrative supervisor of the faculty member concerned. A grievance may be initially presented directly to the administrative supervisor of the faculty member if he or she is not reasonably available to discuss the matter. The supervisor shall attempt to mediate the dispute; should a resolution mutually satisfactory to both the student and the faculty member be achieved, the case shall be closed.
      b. In the case of a grievance against an academic department, program school or college, the student should contact the department head, director or dean thereof, present the grievance in its entirety, and attempt a complete resolution.
   2. **Resolution of grievance by formal means.**
      Should a student be dissatisfied with the disposition of his/her grievance following the attempt to resolve it informally according to the steps set forth in subparagraph A.1. above, he/she may obtain a formal resolution thereof pursuant to the following procedure:
      a. The student shall file with the Screening Board for Academic Grievances of the college (hereinafter "college screening board") from which the matter arises, a written grievance. The written grievance must set forth in detail:
         (i) the act, omission or matter complained of;
         (ii) all facts which the student believes to be relevant to the grievance;
         (iii) the resolution sought;
         (iv) all arguments upon which the student relies in seeking such resolution.
      b. In order to be considered, a grievance must be filed in a timely manner. To be filed in a timely manner, the written grievance (as set forth in subparagraph 2.a. above) must be **received** by the

appropriate college screening board within thirty (30) days of the act, omission or matter which constitutes the basis of the grievance, or within thirty (30) days of the date the student is first placed upon reasonable notice thereof, whichever is later. It is the responsibility of the student to ensure timely filing.

c. The college screening board shall immediately notify the faculty member against whom a grievance has been timely filed, or the head of the academic unit against which a grievance has been filed, and forward to them a copy of the grievance together with all other relevant material and information known to it. The faculty member or head of the academic unit shall within ten (10) days after receipt thereof, make a complete written response to the college screening board; in the event the faculty member receives the written grievance and other relevant materials and information from the college screening board after the last day of classes of the semester in which the grievance is filed, then the time for making a written response is extended to and includes ten (10) days after the first day of classes of the next succeeding semester in which the faculty member is teaching/working on campus (however, this extension shall not be available to a faculty member whose appointment terminates on or before the last day of the semester in which the grievance is filed). A copy of said response shall be sent by the college screening board to the student. In its discretion, the college screening board may request further written submissions from the student, the faculty member and/or the head of the academic unit.

d. The college screening board shall review the case to determine if a formal hearing is warranted:
   (i) The college screening board shall dismiss all or part of a grievance which it concludes:
      (a) is untimely;
      (b) is based upon a nongrievable matter;
      (c) is being pursued concurrently in another review/grievance procedure within the University and/or in a court of law or equity;
      (d) has been previously decided pursuant to this or any other review/grievance procedure within the University and/or by a court of law or equity;
      (e) is frivolous;
      (f) is intended to harass, embarrass, and/or has otherwise been filed in bad faith;
   (ii) The college screening board in its discretion may dismiss all or part of a grievance which it concludes:
      (a) is insufficiently supported;
      (b) is premature;
      (c) is otherwise inappropriate or unnecessary to present to the college hearing board.

e. The college screening board shall meet and review grievances in private. A decision to dismiss a grievance shall require the majority vote of at least three members. If a grievance is dismissed either in whole or in part, the student shall be so informed and given a concise statement as to the basis for such action; however, the decision of the college screening board to dismiss a grievance is final and is not subject to appeal.

f. If the college screening board determines that a grievance is appropriately one for a hearing, it will so inform the dean. The dean shall thereafter within fifteen (15) days convene a college hearing board to hear the grievance, except that for good cause in the discretion of the dean, such time may be extended.

g. The following rules apply to the conduct of a hearing by the college hearing board:
   (i) Reasonable notice of the time and place of the hearing shall be given to the student and the faculty member or head of an academic unit. Notice shall include a brief statement of the violation(s) alleged and the remedy sought by the student.
   (ii) A record of the hearing, including all exhibits, shall be kept;
   (iii) The hearing shall be closed to the public unless a public hearing is specifically requested by both parties;
   (iv) Each party shall have an opportunity to make an opening statement, present evidence, present witnesses, cross-examine witnesses, offer personal testimony, and such other material as is relevant to the grievance. It is the responsibility of each party to ensure that those witnesses whom he/she wishes to present are available, as well as to have his/her case completely prepared at the time of the hearing.
   (v) The student shall first present his/her case; the faculty member or head of the academic unit shall then present his/her response.
   (vi) Upon the completion of the presentation of all evidence, each party shall have an opportunity to present oral arguments and a closing statement. The chair of the college hearing board may in his discretion set time limits upon such arguments and statements.
   (vii) Upon the request of either party all persons to be called as witnesses shall be sequestered
   (viii) Incompetent, irrelevant, immaterial and unduly repetitious evidence may be excluded in the discretion of the chair of the college hearing board.
   (ix) Each party may be assisted in the presentation of his/her case by a student or faculty member of his/her choice.
   (x) It is the responsibility of the chair of the college hearing board to manage the hearing and to decide all questions relating to the presentation of evidence and appropriate procedure, and is the final authority on all such matters, except as are specifically established herein.
   (xi) All documents and materials filed with the college screening board by the student and the faculty member or the head of an academic unit, shall be forwarded to the college hearing board for its consideration, and shall become part of the record of the hearing.
   (xii) The college hearing board shall have the right to examine any person or party testifying before it, and on its own motion, to request the presence of any person for the purpose of testifying and the production of any evidence the chair believes to be relevant.
   (xiii) The above-enumerated procedures and powers of the college hearing board are non-exclusive; the chair of the college hearing board may take such action as is necessary in his/her determination to facilitate the orderly and fair conduct of the hearing and as is not inconsistent with the procedures set forth herein.

h. Upon completion of the hearing, the college hearing board shall meet privately to consider the validity of the grievance. The burden of proof rests upon the student to establish a violation of the expectations of faculty and academic units, set forth in Section II, above, and any concomitant right to relief. It must be shown by a preponderance of the evidence that a substantial departure from the expectations has occurred, and that such substantial departure has operated to the actual prejudice and injury of the student. A decision by the college hearing board upholding the grievance, either in whole or part, shall require the majority vote of at least three members. The decision of the college hearing board shall address only the validity of the grievance, and shall be forwarded to the dean in a written opinion.

i. In the event the college hearing board decided in part or in whole on behalf of the student, it may submit an informal recommendation to the dean with respect to such relief as it may believe is warranted by the facts as proven in the hearing.

j. The dean shall immediately, upon receipt of the written opinion, forward copies to the student and the faculty member or head of the academic unit. Each party has ten (10) days from the date of receipt to file with the dean an appeal of the decision of the college hearing board. The sole grounds for appeal shall be:
   (i) a substantial prejudicial procedural error committed in the conduct of the hearing in violation of the procedures established herein. Discretionary decisions of the chair of the college hearing board shall not constitute the basis of an appeal;
   (ii) the existence of new and relevant evidence of a significant nature which was not reasonably available, at the time of the hearing. The appeal shall be in writing and set forth in complete detail the grounds relied upon. A copy of the appeal shall also be sent to the opposite party, who shall have ten (10) days following receipt to file a written response with the dean.

k. In the absence of a timely appeal, or following receipt and consideration of all timely appeals and responses, the dean in his/her discretion may:
   (i) dismiss the grievance;
   (ii) grant such redress as he/she believes is appropriate, except that no affirmative relief shall be made to a student unless the student executes the following release:

   "The complainant hereby waives, releases and covenants not to sue The University of Maryland or its officers, agents or employees with respect to any matters which were or might have been alleged as a grievance filed under the Undergraduate Student Grievance Procedure in the instant case, subject to performance by The University of Maryland, its officers, agents and employees, of the promises

contained in a final decision under this Procedure."
(iii) reconvene the college hearing board to rehear the grievance in part or whole and/or to receive new evidence;
(iv) convene a new college hearing board to rehear the case in its entirety

l. The dean shall inform all parties of his/her decision in writing and the grievance shall thereafter be concluded. The decision of the provost shall be final and binding, and not subject to appeal or review.
m. For the nondepartmentalized colleges, the dean for Undergraduate Studies shall assume the duties performed by the deans of the departmentalized colleges.

B. Grievance Against Administrative Dean for Undergraduate Studies, College Dean

1. **Resolution of grievance by informal means.**
The initial effort in all cases shall be to achieve a resolution of the grievance through informal means. The student should first contact the administrative dean, present the grievance in its entirety, and attempt a complete resolution; if any portion of the grievance thereafter remains unresolved, the student may present such part to the Vice Chancellor for Academic Affairs. A Grievance may be initially presented directly to the Vice Chancellor if the administrative dean is not reasonably available to discuss the matter. The Vice Chancellor shall attempt to mediate the dispute; should a resolution mutually satisfactory to both the student and the administrative dean/college dean be achieved, the case shall be closed.
2. **Resolution of grievance by formal means.**
Should a student be dissatisfied with the disposition of his/her grievance following the attempt to resolve it informally according to the steps set forth in subparagraph B.1. above, he/she may obtain a formal resolution thereof pursuant to the following procedure:
a. The student shall file with the Chancellor a written grievance. The written grievance must set forth in detail:
(i) the act, omission or matter complained of;
(ii) all facts which the student believes to be relevant to the grievance;
(iii) the resolution sought;
(iv) all arguments upon which the student relies in seeking such resolution.
b. In order to be considered, a grievance must be filed in a timely manner. To be filed in a timely manner, the written grievance (as set forth in 2.a. above) must be received by the Chancellor within thirty (30) days of the act, omission or matter which constitutes the basis of the grievance, or within thirty (30) days of the date the student is first placed upon reasonable notice thereof, whichever is later. It is the responsibility of the student to ensure timely filing.
c. The Chancellor shall forward the grievance to the college screening board of a college other than that from which the grievance has arisen.
d. The college screening board shall immediately notify the administrative dean against whom a grievance has been timely filed, and forward him/her a copy of the grievance with all other relevant material and information known to it. The administrative dean shall within ten (10) days after receipt thereof, make a complete written response to the college screening board; in the event the administrative dean receives the written grievance and other relevant materials and information from the college screening board after the last day of classes of the semester in which the grievance is filed, then the time for making a written response is extended to and includes ten (10) days after the first day of classes of the next succeeding semester. A copy of said response shall be sent by the college screening board to the student. In its discretion, the college screening board may request further written submissions from the student and/or the administrative dean.
e. The college screening board shall thereafter review and act on the grievance in the same manner and according to the requirements set forth in subparagraphs A.2.d. through A.2.e. of this section, for the review of grievances against faculty members, academic departments, programs and colleges.
f. If the college screening board determines that a grievance is appropriately one for a hearing, it will so inform the Chancellor. The Chancellor shall thereafter within fifteen (15) days, convene a campus hearing board to hear the grievance; except that for good cause in the discretion of the Chancellor, such time may be extended.
g. The campus hearing board shall conduct hearings in accordance with the rules established in subparagraph A.2.g. above, for the conduct of hearings by a college hearing board. Upon completion of a hearing, the campus hearing board shall meet privately to consider the grievance in the same manner and according to the same rules as set forth in subparagraph A.2.h. for the consideration of grievances by a college hearing board, except that the board's decision shall be forwarded to the Chancellor.
h. In the event the campus hearing board decides in part or in whole on behalf of the student, it may submit an informal recommendation to the Chancellor with respect to such relief as it may believe is warranted by the facts as proven in the hearing.
i. The Chancellor shall immediately, upon receipt of the written opinion, forward copies to the student and the administrative dean. Each party has ten (10) days from the date of receipt to file with the Chancellor an appeal of the decision of the campus hearing board. The sole grounds for appeal shall be:
(i) a substantial prejudicial procedural error committed in the conduct of the hearing in violation of the procedures established herein. Discretionary decisions of the chair of the campus hearing board shall not constitute the basis of an appeal;
(ii) the existence of new and relevant evidence of a significant nature which was not reasonably available at the time of the hearing.
The appeal shall be in writing and set forth in complete detail the grounds relied upon. A copy of the appeal shall also be sent to the opposite party, who shall have ten (10) days following receipt to file a written response with the Chancellor.
j. In the absence of a timely appeal, or following receipt and consideration of all timely appeals and responses, the Chancellor in his discretion may:
(i) dismiss the grievance;
(ii) grant such redress as he/she believes is appropriate, except that no affirmative relief shall be made to a student unless the student executes the following release: "The complainant hereby waives, releases and covenants not to sue The University of Maryland or its officers, agents or employees with respect to any matters which were or might have been alleged as a grievance filed under the Undergraduate Student Grievance Procedure in the instant case, subject to performance by The University of Maryland, its officers, agents and employees, of the promises contained in a final decision under this Procedure."
(iii) reconvene the campus hearing board to rehear the grievance in part or whole and/or to receive new evidence;
(iv) convene a new campus hearing board to rehear the case in its entirety.
k. The Chancellor shall inform all parties of his decision in writing, and the grievance shall thereafter be concluded. The decision of the Chancellor shall be final and binding, and not subject to appeal or review.

VII. Composition of Screening and Hearing Boards

The following procedures shall govern the selection, composition and establishment of the college screening boards, and the college and campus hearing boards. The procedures are directive only, and for the guidance and benefit of the deans and Chancellor. The selection, composition and establishment of a board is not subject to challenge by a party as part of this grievance procedure or any other grievance/review procedure in the University; except that at the start of a hearing, a party may challenge for good cause a member(s) of the college or campus hearing board before whom the party is appearing. The chair of the hearing board shall consider the challenge and may replace such member(s) if in his/her discretion it is believed such action is necessary to achieve an impartial hearing and decision. A challenge of the chair shall be decided in the discretion of the most senior of the other faculty members on the board. Decisions with respect to a challenge shall be final and not subject to further review or appeal.

A. College Screening Boards for Academic Grievances

1. **Membership of Screening Boards**
a. Prior to the beginning of each academic year, the college council of each college shall choose at least fifteen (15) faculty members and fifteen (15) students to be eligible to serve on boards considering academic grievances from that college. Concurrently, it shall choose three (3) other faculty members to be eligible to serve on boards considering academic grievances for the Administrative Dean for Undergraduate Studies. The names shall be forwarded to the Administrative Dean.
b. Prior to the beginning of each academic year, the Administrative Council of the Administrative Dean for Undergraduate Studies shall choose at least fifteen (15) students to be eligible

to serve on a screening board to review grievances arising within academic units under the administration of the Administrative Dean for Undergraduate Studies. These names shall be forwarded to the Administrative Dean.

2. **Establishment of Screening Boards**
   a. Upon receipt of the names of the designated faculty and students, the dean shall appoint a five-member college screening board which shall consist of three (3) faculty members and two (2) students, and each shall serve on the college screening board for the academic year or until a new board is appointed by the dean, whichever occurs later. The dean shall also designate two (2) alternative faculty members and two (2) alternative students from the names presented by the college council to serve on the college screening board should a vacancy occur. The dean shall designate one of the faculty members to be chair of the college screening board. Members of the college screening board shall not serve on a college hearing board during the same year, except that alternative members may serve on a hearing board other than one considering a case in which the member had previously been involved in the screening process. A member of the college screening board shall not review a grievance arising out of his/her own department or program; in such instance, an alternative member shall serve in his/her place.
   b. Upon receipt of the names of the faculty members designated by each college council and the students designated by the administrative council, the Administrative Dean for Undergraduate Studies shall appoint a five-member screening board to review grievances arising within the academic units under his/her administration. This screening board shall thereafter be established and composed in accordance with the procedures set forth in subparagraph A.2.a. of the section, for college screening boards.

B. College Hearing Boards for Academic Grievances

For each grievance referred by a college screening board, the dean shall appoint a five-member college hearing board. The college hearing board shall be composed of three (3) faculty members and two (2) students selected by the dean from among those names previously designated by the college council and not appointed to the college screening board. The dean shall designate one (1) faculty member as chair. No faculty member or student shall be appointed to hear a grievance arising out of his/her own department or program. The Administrative Dean for Undergraduate Studies shall appoint in the same manner, a hearing board to hear each grievance referred by the screening board reviewing grievances arising from the academic units under his administration. The members of the hearing board shall be selected from among those names previously forwarded to the Administrative Dean by the college councils and from those who had not been appointed to the screening board.

C. Campus Hearing Board for Academic Grievances For each case referred by a college screening board to the Chancellor for a hearing, the Chancellor shall appoint a five-member campus hearing board. The campus hearing board shall be composed of three (3) faculty members and two (2) students selected by the Chancellor from among those names designated by the college councils and remaining after the establishment of screening boards. The Chancellor shall designate one faculty member as chair. No faculty member or student shall be appointed to hear a grievance arising out of his/her own college or administrative unit.

VIII. Definitions

A. **"Days"**
"Days" or "day" refer to days of the academic calendar, not including Saturdays, or Sundays.

B. **"Party"**
"Party" or "parties" refer to the student and the individual faculty member or head of the academic unit against whom a grievance is made.

Appendix J: Procedures for Review of Alleged Arbitrary and Capricious Grading

Approved by Board of Regents: March 12, 1982

Purpose

1 The following procedures are designed to provide a means for undergraduate students to seek review of final course grades alleged to be arbitrary and capricious. Before filing a formal appeal, students are urged to resolve grievances informally with the instructor and/or the administrator of the academic unit offering the course. Students who file a written appeal under the following procedures shall be expected to abide by the final disposition of the appeal, as provided in part seven, and shall be precluded from seeking review of the matter under any other procedure within the University.

Definitions

2. When used in these procedures
   (a)the term "arbitrary and capricious" grading means: i) the assignment of a course grade to a student on some basis other than performance in the course, or ii) the assignment of a course grade to a student by resorting to unreasonable standards different from those which were applied to other students in that course, or iii) the assignment of a course grade by a substantial, unreasonable and unannounced departure from the instructor's previously articulated standards.
   (b) the words "Day" or "Days" refer to working days at the University, excluding Saturdays, Sundays and University holidays.
   (c) the word "administrator" is defined as the administrative head of the academic unit offering the course.

Procedures

3. A student who believes his/her final grade in a course is improper and the result of arbitrary and capricious grading should first confer promptly with the instructor of the course. If the instructor has left the University or is on approved academic leave or cannot be reached by the student after a reasonable effort, the student shall consult with the administrator. If the student and the instructor or administrator are unable to arrive at a mutually agreeable solution, the student may file an appeal within twenty days after the first day of instruction of the next semester (excluding summer terms) to a standing committee consisting of three tenured faculty members of the academic unit offering the course. If the instructor of the course is a member of the committee, that instructor shall be disqualified and replaced by a tenured faculty member selected by the administrator.
4. The student shall file an appeal by submitting to the committee a written statement detailing the basis for the allegation that a grade was improper and the result of arbitrary and capricious grading, and presenting relevant evidence. The appeal shall be dismissed if:
   i) the student has submitted the same, or substantially the same, complaint to any other formal grievance procedure:
   ii) the allegations, even if true, would not constitute arbitrary and capricious grading;
   iii) the appeal was not timely; or
   iv) the student has not conferred with the instructor or with the instructor's immediate administrative supervisor, in accordance with part three of these procedures.
5. If the appeal is not dismissed, the committee shall submit a copy of the student's written statement to the instructor with a request for a prompt written reply. If it then appears that the dispute may be resolved without recourse to the procedures specified in part six, the committee will attempt to arrange a mutually agreeable solution.
6. If a mutually agreeable solution is not achieved, the committee shall proceed to hold an informal, nonadversarial fact-finding meeting concerning the allegations. Both the student and the instructor shall be entitled to be present throughout this meeting and to present any relevant evidence, except that the student shall not be present during the discussion of any other student. Neither the student nor the faculty member shall be accompanied by an advocate or representative. The meeting shall not be open to the public.
7. The committee shall deliberate privately at the close of the fact-finding meeting. If a majority of the committee finds the allegation supported by clear and convincing evidence, the committee shall take any action which they feel would bring about substantial justice, including, but not limited to:
   i) directing the instructor to grade the student's work anew, or
   ii) directing the instructor to administer a new final examination or paper in the course, or
   iii) directing the cancellation of the student's registration in the course, or

iv) directing the award of a grade of "pass" in the course, except that such a remedy should be used only if no other reasonable alternative is available.

The committee is not authorized to award a letter grade or to reprimand or otherwise take disciplinary action against the instructor. The decision of the committee shall be final and shall be promptly reported in writing to the parties. The administrator of the academic unit shall be responsible for implementing the decision of the committee.

Appendix K: Policy on Participation by Students in Class Exercises That Involve Animals

Students who are concerned about the use of animals in teaching have the responsibility to contact the instructor, prior to course enrollment, to determine whether animals are to be used in the course, whether class exercises involving animals are optional or required and what alternatives, if any, are available. If no alternatives are available, the refusal to participate in required activities involving animals may result in a failing grade in the course. Departments including courses where animals are used must actively inform students of such courses, including but not limited to, notices in the Catalog.

The University of Maryland, College Park Campus, affirms the right of the faculty to determine course content and curriculum requirements. The University, however, also encourages faculty to consider offering alternatives to the use of animals in their courses. In each course, the instructor determines whether the use of animals in the classroom exercises will be a course requirement or optional activity. The following departments currently have courses that may require animals to be used in class activities: Animal Sciences, Human Nutrition and Food Systems, Microbiology, Poultry Science, Psychology, Veterinary Medicine, and Zoology.

Adjunct Committee on Academic Procedures and Standards
April 27, 1990

CHAPTER 11

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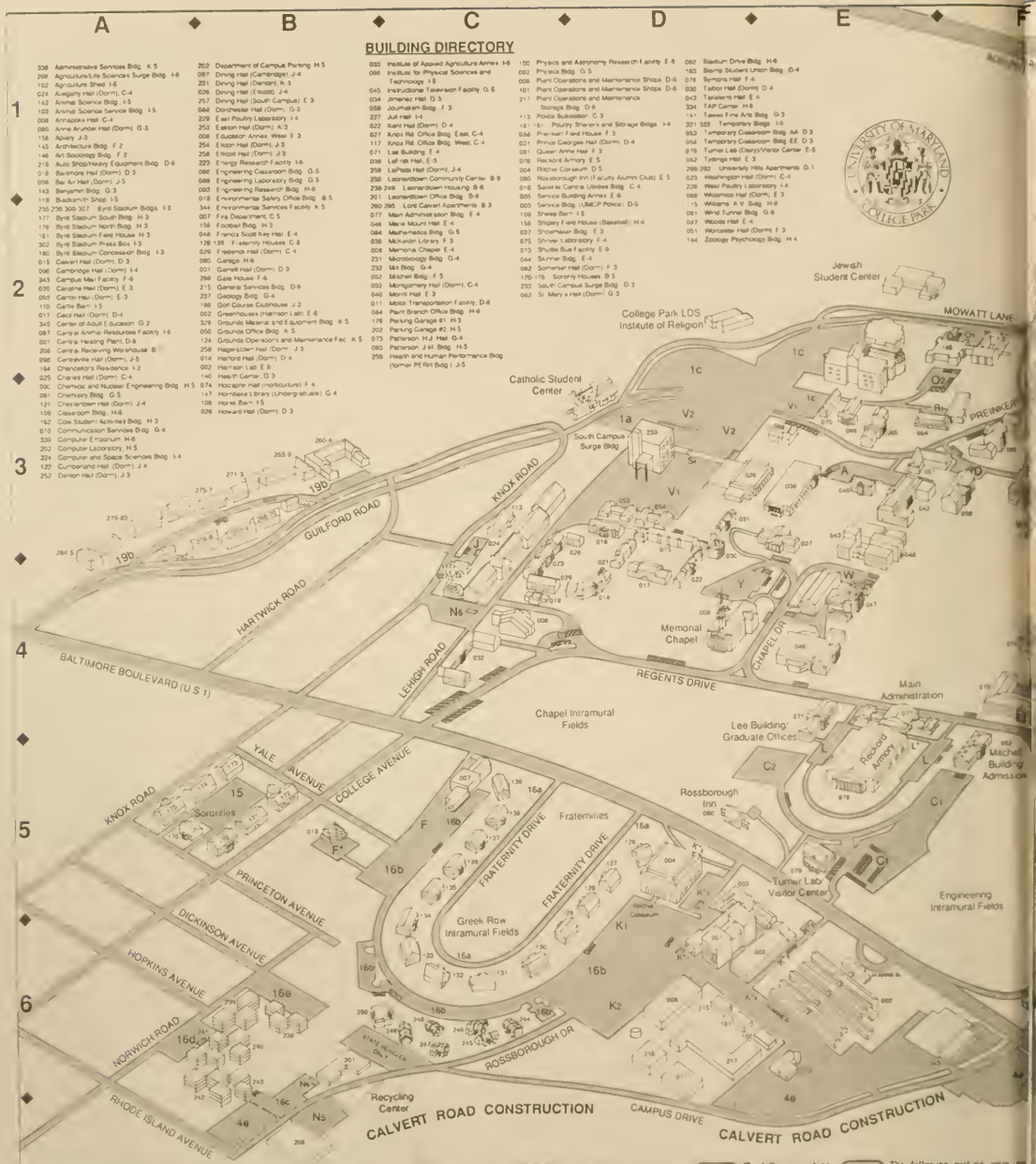
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College Park LDS Institute of Religion
MOWATT LANE
Catholic Student Center
South Campus Surge Bldg
KNOX ROAD
GUILFORD ROAD
HARTWICK ROAD
LEHIGH ROAD
BALTIMORE BOULEVARD (U.S. 1)
Memorial Chapel
CHAPEL DR.
REGENTS DRIVE
Main Administration
Chapel Intramural Fields
Lee Building: Graduate Offices
Reckord Armory
Mitchell Building-Admission
Rossborough Inn
YALE AVENUE
COLLEGE AVENUE
Sororities
Fraternities
FRATERNITY DRIVE
Greek Row Intramural Fields
Turner Lab/ Visitor Center
Engineering Intramural Fields
PRINCETON AVENUE
DICKINSON AVENUE
HOPKINS AVENUE
NORWICH ROAD
ROSSBOROUGH DR.
RHODE ISLAND AVENUE
Recycling Center
CAMPUS DRIVE
CALVERT ROAD CONSTRUCTION
CALVERT ROAD CONSTRUCTION
The following parking areas are limited between 7am and 4pm weekdays (7am 6pm for lot HH) to vehicles displaying valid, current permits for the respective lot, and are limited to any vehicle displaying a valid, current UMCP/DCP permit at all other times.
C, CC, DD, F*2, G, GG, H-assistant, I*, JJ1, K, k*1, k-kk, L, L*, Ni, N2, N4, N5, O, P, P*, PP2, Q, R1, T, V, XX1, Z, 1, 2, 7, and 16.
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A, AA, B, BB, J, FF, F*1, F, G*, H, I, J, k*1, N3, N4, OO, R1, S, W, XX1 and Y
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4a, 4b, and 4c
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A*, D, F*, G*, JJ1, M, N1, PP1, R*, TT, UU, Z*, 15, 19, and PG5.

G
H
I
J
K
STANFORD DR
TULANE ROAD
UNIV BLVD
ADELPHI ROAD
UNIVERSITY BOULEVARD (MD 193)
CAMPUS DRIVE
Baltimore
I-695
I-270
I-95
Rt 1
295
I-495
UMCP
Washington
Rt 50
I-66
I-95
Dulles Int Airport
National Airport
Tennis Bubble
Golf Club House
Construction Area U.C. Garage (11/91)
Center of Adult Education
GG
1e
1d
1b
Tawes Theater
JJ1
AA
Z
ICA Soccer/ Lacrosse Field
Intramural Field
ICA Women's Field Hockey/ Lacrosse Field
STADIUM DRIVE
Cole Field House
Z*
PARKING GARAGE 1
FIELD HOUSE DRIVE
Byrd Stadium
R2
R*
Health Center
M
HH
CAMPUS DRIVE
Shipley Field
BB
Hornbake Library
ICA Turf Field
ICA Football Practice Fields
STADIUM DRIVE
FARM DRIVE
VALLEY DRIVE
2a
2c
2d
2e
2f
4c
S2
N3
N4
S3
PERH Building
PP
PP1
PP2
OO
PARKING GARAGE 2 METERS, PG2, PG3 DCP OFFICES
REGENTS DRIVE
Computer Lab
DD
CC2
CC1
Mathematics Building
XX1
XX2
UU
KK
T
EE
G*1
G3
G2
G4
G5
CONSTRUCTION AREA
Agriculture/Life Sciences Surge Bldg
North Intramural Fields
4b
K5
P
P*
Administrative Services Bldg (Personnel, E&A Procurement & Supply)
11d
11a
11e
4a
4d
PAINT BRANCH DRIVE
BALTIMORE BOULEVARD (U S 1)
N
HANDICAPPED PARKING
MOTORCYCLE PARKING
METERED PARKING
Meters in operation 7am-10pm, Monday-Friday, excluding University holidays. Vehicles displaying current, valid UMCP-DCP permits exempt 8pm-10pm, Monday-Friday in Parking Garages I and II
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